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American Practitioner and News

A Semi-monthly Journal of Medicine and Surgery.

H. A. COTTELL, M. D., M. F. COOMES, A. M., M. D., Editors.

Vol. XXXV. LOUISVILLE, KY., JANUARY 1, 1903. No. 121.

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AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

VOL. XXXV. LOUISVILLE, KY., JANUARY 1, 1903. NO. 1.

Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

OTITIS MEDIA.*

BY HUGH N. LEAVELL, M. D.

Instructor in Physiology and Chief of Ear, Nose, and Throat Clinic at the Hospital College of Medicine, Louisville, Ky.

It might be presumptuous in me, in view of the fact that there are so many eminent specialists members of our Society, to attempt to discuss a special subject. But there are so many points of interest from the viewpoint of a general practitioner that I thought it advisable to call your attention in a brief way to some of them.

Within the past year a remarkable table of statistics has been published by a German physician named Ponfick, who made one hundred consecutive autopsies of infants under three years of age, dying of various acute and chronic diseases. Although otitis media was not suspected in the majority of these cases, it was found to be present in all but nine, unilateral in thirteen, and bilateral in seventy-three. The facts given in Ponfick's statistics seem to show that many of the acute and chronic diseases of infants are accompanied with and possibly caused by an acute inflammation of the middle ear. Other observers have recently made similar statements. Rasch, of Copenhagen, found otitis media in forty-six out of sixty-one infants under two years of age, dead of various diseases, mostly infectious. Barth, of Leipzig, in examining six hundred infants, discovered otitis media to exist in about 80 per cent. Twenty-four out of forty-four children under three years of age examined by Halstead had middle-ear disease, in but four of whom

*Read before the Louisville Clinical Society, December 2, 1902. For discussion see page 15.

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had involvement of the ear been considered probable. Von Trolsch found a normal middle ear in but eighteen out of forty-seven petrous bones in undetected cases of children, and Reden under similar circumstances found the middle ear free from disease in but fourteen out of eighty cases of children under five years of age. These statistics could be multiplied, but they are sufficient to show that the middle ear is involved in a very large proportion of children supposedly suffering from other diseases.

Close attention to these statistics should have a twofold effect upon us: First, it will astound us to see the great proportion of infants who suffer with this disease unrecognized except on the post-mortem table; second, that the general practitioner must of necessity pay more attention to aural diseases in infants. The ear in infancy can be easily affected without attracting attention to the disease. An infant of a few months is much too young to indicate in any way the symptomatology of this trouble. One point which is of special interest in this connection is that it will almost invariably scream while in the act of nursing, since swallowing causes pain. But in most cases the general symptoms common to digestive disturbances, bronchitis, measles, or any of the exanthematous diseases prior to the development of the eruption will, in a great measure, obscure any local manifestation.

The etiological factors have been discussed so often in this and other Societies that a mere résumé of these will be of interest. First, tonsils: I may say here that the general practitioner is far too likely to not lay enough stress on this trouble as a causative factor. We must remember that the Eustachian tube in infancy is very much larger in proportion than we find it in the adult, thus allowing infectious material to have a resting-place and later to involve the middle ear. Adenoids, of course, are a very potent cause of this trouble. Bronchitis and pneumonia are very potent causes, perhaps because of the fact that the cough causing a forcible current of air to be passed through the larynx may forcibly inject infectious material into the wide-open Eustachian tube.

Then again, some cases of otitis media are really not accompanied with much pain, and objective symptoms in the canal, such as redness and bulging and the membrana tympana in its upper segment may not be at all prominent. It must be supposed in this case that the ear has been drained through the wide and short infantile Eustachian tube so

that pus and serum can not collect within the tympanic cavity to cause redness, swelling, and perforation.

It is wise in every case of infantile disease to make a thorough examination of the drum. This, of course, will be impossible unless the practitioner has a head-mirror. One of the professors in one of our schools has very wisely said that this instrument throws light in many dark places, and I do not think that the general practitioner's armamentarium against disease is complete without this instrument. The technique of its use is easy to learn, and its value hard to estimate. It would certainly seem in a fractious infant wise to administer a few whiffs of chloroform in order to make our examination complete rather than treat the infant a few days for some general disease and to our chagrin find on our next visit a free discharge of pus from the aural cavity. Our explanation in this case must of necessity put doubt into the mother's mind as to our ability to make a diagnosis. It is my belief that auto-intoxication from the absorption of infectious material in the middle ear probably occurs in a number of cases where other organs—lung, stomach, intestines, etc., are found diseased coincident with involvement of the middle ear. It follows that the ear should be considered a possible etiological factor in all cases of infantile diseases where there is a sudden development of an infective process without a certain and plain cause to be found elsewhere. Of course, it is absurd to claim that every case of acute infantile illness has involvement of the middle ear, but it can not be too strongly urged that very many obscure cases would be cleared up if there were more frequent examinations of the middle ear in infants and young children. The history of an aural discharge or its previous existence, especially if the discharge has either suddenly ceased or suddenly increased, auto-intoxication from the absorption of infective material in the tympanic cavity, really in most cases explains the entire train of symptoms.

The treatment of those cases where infection has resulted in suppuration is, first, cleanliness to cure the disease and cleanliness to prevent complications. The latter are more likely to occur in infants because of the very thin partition separating the middle ear from the mastoid cells. In the very early stage of the congestion, which is always accompanied by pain, there is no measure so efficacious as hot water. This should be applied by means of a fountain syringe suspended not more than one foot above the level of the infant's head, this latter precaution to prevent too much force being applied to the drum

membrane. The instillation of drops into the ear will not accomplish much. The congested drum membrane, of course, prevents absorption of these. However, after a long continuance of the use of hot water applied as above stated, it may be followed by the instillation of drops, because then we may have to some extent relieved the congestion and the blood-vessels may take up enough of the solution to ease pain.

Carbolic acid and cocaine in solution I believe to be the best to use as a basis for these drops. The carbolic acid is a very potent anesthetic. Of course, it is necessary, in many cases, to administer some medicine internally; such, for instance, as phenacetine, Dover's powder, and possibly bromides. These should be used with caution, however, for as in appendicitis we may mask the symptoms by the use of opiates, so in this case many meningeal involvements and mastoid disease may be the Damocles' sword hanging over the infant's head, and opiates must be used with discretion. Incision of the drum membrane early is a very potent factor in relieving pain and in curing the disease. We need not be fearful of the length of our incision, since these incisions heal very rapidly without impairment of the functional activity of the drum membrane. Cleansing solutions, such as listerine, peroxide of hydrogen, carbolic acid, and boric acid may be used. Peroxide of hydrogen should be used with caution in infants where the drum membrane has not been sufficiently incised or spontaneously broken, since the evolution gases may cause considerable pain. Although the drum membrane may be thoroughly opened there is another factor in these cases to be considered, viz., the presence of granulation tissue, causing aural polypi and interfering with drainage of the auditory canal. These are best removed by the curette. Since this is a very painful procedure, general anesthesia is necessary. It may be accomplished, however, by the use of a three-per-cent boric acid solution in alcohol; this solution being diluted if it causes pain, and the strength gradually increased until there is absorption or shrinkage of the granulation tissue.

The conclusions to be drawn from this paper are:

1. Earache in children is generally caused by acute inflammation of the middle ear, suppurative or non-suppurative.

2. Infants and young children may have suppuration of the middle ear without giving satisfactory evidences of pain or without rupture of the drum membrane.

3. Otitis media is nearly always present in acute infectious diseases of the gastro-intestinal and respiratory tracts of young children and

probably stands in a causative relation to gastro-enteritis and broncho-pneumonia.

4. The cause of death in many acute and chronic infectious diseases, in meningitis and in the exanthemata, is the result of unrecognized and untreated disease of the middle ear.

LOUISVILLE.

REPORT OF CASES OF GALL STONES.

BY WILLIAM MOORE, M. D.

The subject of gall stones is one that has interested me to a considerable extent for the last fifteen years, because so many cases of it are met with in this section of the country. It has seemed to me that the water supply has a great deal to do with the production of the disease. Through this section the generation that is now passing away used limestone water almost exclusively, and it is among them that all or nearly all our cases occur. The rising generation nearly all use cistern water, and among them I never saw a case. In fact, in every case I have observed I have found that they had, so to speak, been raised on limestone water, or "hard water" as it is sometimes called. I have seen about forty cases which I have been able to verify by finding the calculi after they had been passed. In one of my cases ninety-six stones were passed in a period of twelve months. In another forty-eight were passed in two weeks.

I have given olive oil in quite a number of cases, and in some of them quite a number of stones were passed, but I have given it in quite as many with no effect at all. In one of my cases, after giving half a pint of sweet oil, fifteen good-sized stones were passed the next day; but in the same patient in subsequent attacks it did no good at all. In speaking of large stones, I remember about ten years ago a case in the hands of another physician which was diagnosed as malignant disease, on account of its long standing and the enormous enlargement, which was supposed to be of the liver; and the diagnosis was concurred in by one of Kentucky's best physicians. But just when the patient was ready to die she passed a gall stone fully five eighths of an inch in diameter and nearly round. The discharge of the stone was followed by rapid and complete recovery. In this case the jaundice was extreme, as was also the emaciation. This woman

gained over eighty pounds in three months and has had no recurrence of the trouble.

About four years since I saw a case in a man seventy-two years of age, with all the symptoms of impacted stone in the cystic duct. After the usual treatment with olive oil and chloroform I insisted upon an operation, but the patient would not submit to it, and I told him I could only give him opiates to relieve the pain, which at times was very severe. After this I did not see him again for three weeks, at which time I was called to open an abscess upon his side. I then found, situated upon the lower border of the right costal cartilage, just over the point of the first floating rib, a very large abscess, which looked like it was just about ready to open spontaneously. I opened it with a bistoury, but to my surprise there was only about one ounce of pus in it, but quite a quantity of foul gas escaped. The pus had burrowed down by the rib, about two inches of which was entirely denuded of its periosteum. The next day Dr. Davis administered an anesthetic for me and I removed the end of the rib and found a large sinus passing up along and upon the costal cartilages. Passing my finger into this I could feel something round. I slipped a long, slender forceps up and was able to get hold of it and extract it. It proved to be a stone fully three quarters of an inch in diameter and shaped like a quail's egg. There was a free discharge of foul pus. The cavity was cleansed and the wound was dressed in the usual manner, with drainage. My patient died in four or five days after the operation, from exhaustion.

I would add that while olive oil may aid the passage of stones, I have no faith in any medication, but would recommend that all patients afflicted with this malady be put upon cistern water or soft water and urged to drink as much of it as possible. I believe that massage over the region of the gall-bladder, under chloroform, will do more to aid the passage of stones than anything else.

ELIZABETH, IND.

SEPTICEMIA AND THE CURETTE.

BY H. PLYMPTON, M. D.

To attempt to break up an old-established custom in any line of life is at best a thankless job, and one likely to call down harsh criticism upon the head of the daring iconoclast. To attempt to uproot old prejudices existing in favor of a certain line of practice in surgery, and diametrically oppose such practice, is to invite from some adverse criticism of the harshest kind. The only recompense for this is a logical refutation of or concurrence in the argument advanced on the part of other members of the profession.

This latter is what I hope for, and if I provoke a discussion or start a line of thought in the minds of half of the readers of this article, I shall have achieved all I started out to do. Curetting the uterus to remove fragments of afterbirth or other debris has been taught in our medical schools from time immemorial, and it is firmly fixed in the receptive and retentive mind of every medical student that the first move following any such abnormal uterine condition is to cleanse the uterus by means of the curette. That the organ should be thoroughly and aseptically cleansed admits of no argument, but that the work should be done with the curette I deny most emphatically.

The majority of cases of death following the decomposition of fetus or placenta in utero are caused by the use of the curette, and I hold that septicemia may be avoided if a more rational procedure be resorted to. The condition of the uterus containing septic matter is one of great congestion, the thickened walls being coated internally and over the os with a thick, brown, tenacious mucus. The congestion is active and therefore the more dangerous in the event of the admission of septic matter into the circulation. If the curette is used, denuding the walls of their protective covering, an immediate vaccination takes place with a septic virus, septicemia following in an incredibly short space of time (chemical metamorphosis is marvelously rapid in the circulatory system), and death quickly ensues.

If without using the curette we can remove the septic matter from the uterus without disturbing the mucous covering and enable the uterus of itself to expel the coating, we shall have taken a long step forward in the treatment of this class of uterine cases.

The uterus, by reason of its congestion, may be made to perform a self-cleansing act by exciting the exudation of the serum of the blood into its cavity, thereby washing itself out and expelling all septic matter instead of absorbing it. This process of exosmosis is induced by a properly combined alkaline solution at a temperature above 100° and a strict avoidance of bichloride, carbolic acid, formaldehyde, or any antiseptic of an acid reaction or astringent nature, which would coagulate the fibrin and albumen of the blood.

My method of procedure is as follows:

First, the gentle removal of whatever fragments are lying in the uterine cavity, by means of forceps, care being taken not to tear from the walls any adherent piece.

Second, the gentle flushing of the uterine cavity with the alkaline solution (110°), the reservoir containing the fluid being not more than two feet above the level of the hips.

If the flushing could be continuously administered for a few hours (say two or three) the conditions would be more speedily reduced to normal, but the discomfort of the position of the patient (on a douche pan) prevents this, and a flushing once every two hours with one quart of solution is about the limit of treatment.

For flushing the uterus I use a small dilating uterine douche, and as there is plenty of room for the escape of fluid and fragments, there is no danger of Fallopian colic or salpingitis.

The first flushing is frequently followed by contractile pains and expulsion of any previously adherent pieces, together with much of the mucus.

A tablet of ext. cannabis indica, gr. ¼, ext. ergotin, gr. ½, every hour till desired effect is produced will contract uterus and alleviate pain.

The bowels should be moved freely, both by enema and catharsis. During the interval between douches the patient should be kept on her back, with the hips sufficiently raised to permit the retention in the vagina of as much of the alkaline solution as it will hold.

The rapidity with which this treatment will reduce temperature, relieve pain, stop vomiting, and remove offensive odor is marvelous to one who has not tried it. Sometimes two flushings are sufficient to cleanse the uterus thoroughly, vaginal douches being all that are needed subsequently to complete the work.

Uterine congestion is speedily relieved, and the uterine discharge changes from brown, thick, bad-smelling mucus to a thin transparent one, accompanied or followed by more or less of a flow of blood.

A reduction in the frequency of the flushings is desirable as soon as a tendency to return to normal conditions begins to be observed, as it frequently will within twenty-four hours. Then simple vaginal douches every three hours, with an occasional uterine flushing if symptoms indicate it.

The action of exosmosis (and endosmosis, for there is every reason to believe in the absorption of some of the fluid) is what is desired to relieve the existing congestion, as in a bronchitis, pneumonia, congestion of kidney, congestion of any mucous membrane, etc., and is the most rational means of restoring to normal condition.

I do not wish to be understood as decrying the use of that most valuable instrument, the curette, but only the abuse of it, to wit, its employment under such conditions as make it practically a sharp weapon loaded with septic matter, dangerous beyond the poisoned arrow of the Malay or the fang of the cobra, and utterly opposed to our modern ideas of antisepsis.

Brooklyn, N. Y.

INEVITABLE ABORTION, WITH REPORT OF CASE.*

BY W. E. GARDNER, M. D.

I shall not attempt in this paper to bring before this Society anything new or unusual, but shall merely mention a few of the more salient points of an old subject, in order to call forth a discussion which may be of some interest to us all and of especial interest to me.

By abortion we mean the premature expulsion of the ovum. For convenience of discussion this subject may be divided into abortion proper, miscarriage, and premature labor, according as to whether it occurs before the end of third, sixth, or ninth month respectively. It is further divided into complete and incomplete abortion, according to whether all or only a part of the contents of the uterus are expelled. And lastly we have threatened and inevitable abortion, of which the latter will concern us more especially to-day. I shall not stop here to consider the etiology and pathology of abortion, about which there is more or less speculation, but shall at once pass to some of the more practical points in the way of differential diagnosis and treatment.

*Read before the Muldraugh Hill Medical Society, December 11, 1902.

Being called to attend a case of abortion, the first thing necessary is to determine whether or not it is inevitable, for upon this decision hangs our plan of treatment, and the treatment of one is almost diametrically opposite to the treatment of the other.

I take the ground that when we find that the tip of the finger can be inserted into the os uteri, and the ovum is felt to recede from it, the abortion is almost surely inevitable, and is rendered more or less so according to the amount of hemorrhage and the force and frequency of the uterine action. It being determined that abortion is inevitable, ergot should be given in full doses to control hemorrhage and to assist the contractions of the uterus. If there has not been much dilation of the os, the antiseptic tampon should be applied after the vagina has been thoroughly cleansed and allowed to remain for several hours, if necessary, when it may be removed and another applied. And, by the way, I think we should use the utmost care in the treatment of these cases in regard to antisepsis, for by this means we may avoid considerable trouble in the way of sapremia or septicemia.

If the presence of the tampon does not cause sufficient dilatation of the os the Barnes' bag may be used, and I hold that the use of this or the fingers alone is much safer than the Goodell dilator, for we are less likely to produce trauma and cause lacerations, which are often a fruitful soil for infection. After the cervix has been well dilated and the anterior semicircumference is practically obliterated, and the ovum still does not pass, it becomes our duty to remove it, and often much sooner than this if there is much hemorrhage and excruciating pain. In this event I think it is best to administer an anesthetic, which, besides relieving the pain, will relax the parts and lessen the amount of shock.

If the abortion is not complete the uterine cavity should be irrigated with an antiseptic solution and curetted if necessary, after which the vagina may be tamponed. However, we should be very careful about the use of the tampon after the fourth or fifth month, for the uterus by this time has reached a size which would permit of considerable hemorrhage into its own cavity, and thus endanger the life of the patient. If the placenta has been formed and is rather firmly adherent we should wait for it to be expelled, as in a case of normal labor. If, however, at the end of a reasonable time it yet remains, it should be removed and the uterus thoroughly cleansed, for the patient's life is in danger so long as the abortion is incomplete.

On August 5th I was called to see Mrs. P. at 11.30 p. m., who was having considerable hemorrhage and rather violent pains, with about three minutes' intermission. On examination I found that I could introduce the tip of my finger into the cervix and could feel the ovum. There was a considerable left lateral laceration and displacement of the fundus to the right. The bladder and rectum were empty.

The patient gave a history of having had one normal labor, one miscarriage, and one transverse presentation, the latter of which occurred last December, with the loss of the child. Patient said she had missed two menstrual periods, with only slight menstruation the two preceding months.

I at once gave a full dose of ergot and applied the tampon, which had been wrung out of a carbolized solution. At the end of two hours I withdrew it and found that the cervix had dilated to the size of a twenty-five-cent piece. I gave another dose of ergot and reapplied the tampon.

At 3.30 a. m. I made another examination and found that the cervix had dilated to almost the size of a silver dollar. I withdrew the tampon completely and waited one hour, thinking surely the ovum would pass at any moment. The pains were still periodical, but very severe, and patient was becoming exhausted. I decided to wait no longer, and after thoroughly cleansing my hands and the vagina with a carbolized solution, I removed the fetus by introducing two fingers into the womb, and found that it was about four and a half months old. Its heart beat for a few seconds, but its mouth and eyes could not be opened. The sex could be made out. There was a cord and seemed to be a placenta of considerable size. I washed out the vagina and uterine cavity with a blunt douche curette, and found the placenta firmly adherent. There was still slight hemorrhage, but this was easily taken up by a pad applied to the perineum. I left the patient at 5.00 a. m., returning at 5.00 p. m., and easily removed the placenta and a number of clots which had been thrown down into the lower segment of the uterus. The placenta and membranes came away intact, and the uterine cavity seemed to be clear. There was no hemorrhage, and patient made an uninterrupted recovery in a few days, with the exception of some soreness of the breast.

GLENDALE, KY.

Reports of Societies.

LOUISVILLE CLINICAL SOCIETY.

Stated Meeting, December 2, 1902, President Krim in the Chair.

Exhibition of Fetus. Dr. Krim: I have here a specimen which is not of itself uncommon, but which comes from an unusual source. About two weeks ago I was called to see a little girl about thirteen years of age. The mother said that she had a severe case of colic, but I had not been there more than fifteen minutes before I detected that there must be something else the matter. About fifteen minutes later this mass came away entire. The mother told me the girl's age was thirteen and the girl said its author was fifteen. Both were white; the girl works in a clothing factory. She would not admit that she had had an abortion. Her mother would not believe it was possible until the specimen was shown her. The girl had been menstruating about eight months. The embryo is in the third month.

Dr. Griffiths: This specimen might seem of ordinary importance, but it is a very beautiful lesson to us as to the importance of using care in all cases. We would least expect this from a child of that age with that history of menstruation. It shows beautifully the importance of making our examinations thorough. I think Dr. Krim is to be congratulated on this case.

Dr. W. H. Wathen: While this specimen might appear to some to be insignificant, it is of great value to the medical profession, for a proper appreciation of an abortion of this kind in relation to its treatment will enable us to preserve life and prevent disease arising from such cases. This is an unusual condition, because we find here the structures expelled intact, the embryo with the amnion containing the liquor amnii with the chorion and the placenta, indicating a pregnancy of from ten to twelve weeks. We find usually that the entire mass is not expelled together, the embryo coming away first or in the amnionic sac, with the placenta left in the womb. If we have treated these cases in a careful manner with clean hands there will be no trouble, but where the embryo comes away alone or in the unbroken amnion, leaving the placenta behind, there is grave danger. In abortions from the seventh to the fourteenth week there is more danger than later, because later the placenta will be more likely to come away. I discussed this

question in one of our medical societies many years ago, when a prominent specialist was present, especially in relation to the question of the amnion being expelled unbroken up to the fifth month, leaving the placenta. The specialist told me that it was an absurdity, but we all know that it is a very natural result. We know how easily the amnion may be separated, and it is often not entirely united to the chorion until the fourth or fifth month.

What has been the treatment in these cases of abortion where the placenta has been retained? Until twelve or fifteen years ago I suppose that more than three fourths of the profession left the placenta for nature to remove. The result was that some of these women died from hemorrhage, some died from sepsis, and others had pus tubes and other troubles. The medical profession has not appreciated the gravity of a case of abortion. In every case of abortion we should remove everything as completely as nature has removed this. There is no excuse for leaving anything behind. *It should not be removed to-morrow, it should be removed to-day.* The curette is no way to remove a fresh placenta, for you can not tell whether you have removed all of it and you may do injury to the soft parts. By using the finger under the most careful aseptic conditions, there is not one case in fifty in which you can not remove the placenta entire. Then irrigate the womb if there is any possibility of infection and your patients will all get well.

I recently operated on a woman who had been delivered from four to six weeks previously and the placenta retained, parts of it being curetted away from time to time. She had a temperature of 105° or 106°, with a very rapid pulse, with a uterus as large then as when she was delivered. I curetted the uterus with a sharp curette and removed all the remains of the placenta; then the uterus was irrigated and an opening made posteriorly into Douglas's pouch and tamponed. She made an uneventful recovery. We do not know when these recoveries will occur if the placenta is left. Be sure that the placenta is removed before you leave your patient.

Dr. Satterwhite: I would just like to raise a question in regard to my rule in all these cases. The doctors have been very particular about recommending the use of bedpans in such cases, for the purpose of keeping the patient in a recumbent position. I do not use the bedpan, but make them get up and sit on the commode. I have often thought, especially in cases where you have to take the placenta away

or the membranes, that they should be in a semi-upright position during the day, so that the drainage can take place into the vagina.

Dr. W. H. Wathen: That is a wise precaution when they have not bled so much that it is contraindicated. Many women have died who would have had no trouble had they not gotten up to the commode.

Dr. Griffiths: A great many doctors to-day use vaseline and lard to anoint the finger in the course of manipulation. I use a bowl of boiled water with a little corrosive sublimate. I keep this bowl under the bed and use it in making all my examinations. I use nothing else. I always carry tar soap and brush with me and observe the usual methods of thorough cleansing.

Dr. Carl Weidner: Since Dr. Wathen has opened up the field of treatment, I will raise the question that he brought up, Why the finger should be used? In many instances we ought to use the finger to see that everything has been removed in cases advanced in the tenth or twelfth week. At that time we can succeed in sweeping around and telling if the field is clear. But suppose it is earlier? I do not see why the instrument properly used would not give us a chance of more perfect removal than with the finger. Besides, we are more likely to properly prepare the patient for the curette than for the finger. In those cases we are extremely careful; if we use the finger we may not do this so thoroughly. I do not see why the finger should be able to remove the adherent part of the decidua more thoroughly than the curette. I will say also that in the case of young girls and old maids it is the hardest question to put as to the history of these cases, yet it is important to look into the history of all such.

Dr. Leavell: I want to take issue with Dr. Satterwhite as to the semi-recumbent position and the use of the commode. I think we must be very careful about the patient's heart. There is a great deal of blood lost during labor, and this might have a very disastrous effect on the heart. If we adopt the commode as a routine method, we had better use some heart stimulant. I have been adopting this method, and yet I notice that some of my patients get very weak after sitting up following delivery. A great many people can not use the bedpan very satisfactorily, it is true, but I think as far as possible we had better stick to the bedpan unless there has been very little hemorrhage. In the case of the removal of clots by encouraging the patient to sit up, we had better use heart stimulants.

Dr. W. H. Wathen: The uterus in a pregnant state after the beginning of the formation of the placenta is so soft that you can not always

absolutely tell, even with an experienced finger, whether you are scraping away the placenta or the soft uterine tissue. There would be danger with the curette of perforating the uterus in some instances, as you can not tell whether you are in contact with the placenta or the uterine wall. You can not tell with the curette whether you have gotten all the placenta away; with the finger you can distinguish the placenta much better, and you can do this without injury to the uterine wall. If you use your finger the placenta will usually follow its withdrawal, and if not, you can use forceps and pull away the fragments. Your preparation for the use of the finger should be as careful as for the curette. Remember, unless there is some special disease, the vagina is aseptic.

Dr. H. N. Leavell's paper: "Otitis Media." (See page 1.)

Dr. Satterwhite: I am satisfied that many children have middle-ear trouble unrecognized. The inflammatory condition may even cause death, from the inflammation extending to the meninges and without causing earache. That will depend largely upon the patulousness of the Eustachian tube, as the discharge takes place through that canal. Those are the cases to which the doctors' attention is called. I do not suppose there is any doctor here who thinks of examining the drum-head in a case of sore throat, although we expect to look for earaches. When it does come there is but one thing to do, to give some kind of a sedative for the relief of pain. I think it cruel to let any one suffer with earache without relieving it. When the drum-head is perforated, whether by incision or by bursting, absolute cleanliness is necessary. Whenever the discharge shows itself at the exit of the canal it should be throughly cleansed with mild antiseptic remedies, with the addition of some astringent later.

Dr. Coomes: This is a very interesting subject, especially to the general practitioner. A great majority of deaf people are deaf as the result of acute inflammation of the middle ear, and a majority of those who have acute ear trouble are children. I read the statistics alluded to and was astonished at them, but I think they are not as clear as they ought to be. I think he may have found some evidences of ear trouble in ninety cases out of a hundred, but I do not think it was enough to show up very serious. I do not believe there were even forty cases of suppuration. They probably found an exudation of serum and mucus, for this cavity is lined with mucous membrane, and this exudate was supposed to be a product of inflammation when it was the result of

post-mortem changes. But let that be as it may, the important thing is the recognition of the condition at the bedside after making an examination. It is a little thing to remember, but in ninety cases out of a hundred where the drum membrane is engorged, the least pressure in front of the ear will induce a scream from the child. I remember at St. Vincent's Orphan Asylum we had many cases of earache and there I learned that the outside touch is very valuable for diagnosis. The pressure should be made right in front by pressure on the external ear.

As soon as recognized the thing to do is to make some local application. I believe that hot water is worth all the others put together. One little point worth remembering: In directing the stream into the ear, do not send it straight in, for if there is the least overforce it will induce pain. Contact of the warm water with the drum-head is all you need. In treating these cases after they have become chronic, I want to put myself on record against the use of peroxide of hydrogen and particularly in the hands of the general practitioner. I am sure I produced two or three cases of mastoid inflammation in one month as a result of this. It does stir up things and liquefies the pus, but I think the gain is overbalanced by the risk. This applies particularly in older children and adults, unless you had a very wide opening in the drum membrane. I want to say that I believe in the suppurating chronic middle-ear troubles we do not do enough surgery. I believe in all these cases of chronic middle-ear suppuration, where the perforation is above the level of the canal, we ought to cut out a section of the drum-head extending down the floor of the external canal. It is almost impossible to clean the drum cavity with the perforation above the floor.

Dr. Wm. Cheatham: It is a very timely and a very excellent paper, especially as coming from the standpoint of a general practitioner, for hitherto we have not been able to make much impression on these. I, too, have seen the statistics and think there must be some mistake somewhere. I do not think you could find that much ear trouble in a hundred picked cases of children.

Dr. Coomes referred to pressure on the auricle as a means of diagnosis. Another important point is the rolling of the head from side to side. For applications, I use King's fountain syringe with a thermometer attached, and with that I always know the temperature. It is seldom that we find a tube that is proper for a child's ear. I always remove the tube and take a medicine dropper and put on a

piece of rubber and it saves a great deal of pain. It is important to wipe the ear very dry, for this will save a great deal of trouble.

About the drops: I differ with the essayist on that point. I am sure I get very good effects before the formation of the fluid from the use of a grain of atropia with two grains of morphia and five per cent cocaine to the half ounce, well warmed. In the case of a small child I would decrease the atropia.

I think the best of all things in earache is the use of leeches. You may take a child that has not slept for sixty hours and put on a leech or two and they will fall asleep while the leech is at work. I have a case of this kind on Fourth Street now.

I value the application of cold very highly for the first twenty-four hours. It is not safe after that time, on account of the danger of masking the symptoms. If cold does not relieve within that time, stop it. I think Dr. Coomes must be mistaken about the cause of deafness. In the case of people who have become deaf in after life, unless you question closely it is very difficult to locate the time of the ear trouble. Acute ear trouble is the primary cause. We find more cases from the non-suppurative diseases, but it originates from "earache" in childhood. We had this subject up last night, and I made some quotations from Politzer, in which he says that there is no case of middle-ear trouble with pus but what there was pus in the antrum of the mastoid from the beginning. From the position taken by the patient the pus flows into the antrum. Yet the opening is so small that I do not see how this can be.

Another point brought out was the importance of the character of the infection. It is very important in these cases to find out what kind of infection is causing it. If it is the pneumococcus it will not be so serious as the streptococcus or staphylococcus.

Dr. Carl Weidner: I compliment the essayist upon the choice of the paper and upon the paper itself. It is a subject of great interest to us. I am not familiar with the statistics, but he says it includes the general run of cases. It looks very strange that these statistics should include this disease as one of the pathological conditions found when most children die of some other disease, of the lung or throat or some of the infectious or eruptive diseases. They may have had an accompanying disease of the middle ear, not simply otitis media but that as one of the accompaniments. Every case of fever in a child, unless

explained by some other cause, should lead to a careful examination of the ear. I think we ought to lay that down as a rule, just as some specialist has said that we ought to inspect the throat in every case of fever. We are entirely too negligent in this respect.

Dr. Satterwhite: Did you ever see a case in which there was discharge from the ear without previous pain?

Dr. Carl Weidner: Yes, in tuberculous cases, but in non-tuberculous they usually have pain and fever, which may be attributed to bronchitis, etc.

As to the treatment, the specialists have not mentioned a method which I have used myself in two cases, in one of which especially it gave a result I never before saw. I refer to the dry method. I forget who recommended it. The method consists of taking a speculum and packing borated gauze tightly against the opening of the drum and repeating this the following day. I never have had in all my experience such a result as in that case, and in the other it was more satisfactory than with the use of washes, etc. The idea is that the thick pus destroys the culture growth of the bacteria, and there may be something in that. As we all know, the old surgeons argued that we ought to let the pus dry.

Dr. Dabney: I enjoyed the paper very much and am sure it is a timely one. I believe we do have ear troubles without pain. They do not always suppurate, though they may have a fever running up to 103° or 104°. Acute cases of inflammation of the middle ear often have little or no pain, and the subjective symptoms about the head that adults complain of are overlooked in children. It is important to remember that absence of pain does not indicate absence of ear trouble. I take these statistics with a grain of salt. I believe that generally knowledge of the previous clinical history is not often enough associated with statistics. It might be that the ear trouble was a consequence rather than a cause in these cases. I am sure Dr. Coomes unintentionally stated that the middle ear was a serous cavity.

In regard to the treatment in these cases, I do very much as the others. I believe that Dr. Leavell is wise in warning us against keeping up sedatives too long, and especially unless the man has carefully inspected the drum membrane itself. I use the syringe and use it in just the way he described. I also think hot water is the most valuable of our applications. I do not think if the fountain be a little higher it will do any damage to the drum membrane. I am sure that Dr. Cheat-

ham was wise in recommending leeches. I do not think we have a substitute for them. I have seen children go to sleep with the leeches sucking the blood, and in some cases they are almost indispensable. After perforation I think the hot water should be kept up in these acute cases. I have found the treatment alluded to by Dr. Weidner very satisfactory; I use it very often, especially when the perforation is large. I hardly think the results from peroxide of hydrogen mentioned by Dr. Coomes can be very frequent. Think of the vast number of cases in the past years in which it has been used, with the few mastoid cases. Besides, Dr. Coomes alludes more to the chronic than to the acute.

About the drops: I use drops. I think I get some benefit from them, but I have always been somewhat in doubt, because I always use other things in connection with them. I often use hot water, with a prescription of calomel and Dover's powder in one prescription in the beginning. Dr. Williams, of Boston, was the first to call attention to the value of atropia, one grain to the ounce. I am in the habit of using a two per cent carbolic acid solution with cocaine and water. I have never used morphia, but what has given me the most benefit has been carbolized glycerine with cocaine. I have never used adrenalin after perforation for the purpose of getting a good view. It is certainly fine for shrinking tissue and preventing hemorrhage. Possibly it aids absorption before perforation, but I have some doubt.

I stand with Dr. Cheatham as to the proportion of deafness caused by acute middle-ear trouble. If we leave out the eruptive diseases, and possibly if we include them, most deaf people have not had suppuration. These chronic cases nearly always begin with catarrhal trouble. I think it is a pity they are so often painless, for they are thereby often overlooked. One of the eminent writers says that the beginning of the chronic non-suppurative cases is over and over again an acute catarrhal inflammation where the patient has been dismissed too soon. We are very liable to dismiss this class too early. I think we ought to keep them in hand and inspect the ears and watch them until they reach the normal.

Dr. Marshall: The subject of statistics interests us all, and I think these are in keeping with what we hear from the dead-room in every department. About a year ago I remember reading the statistics about tuberculosis, prepared in Germany. One, I believe, was the result of about five hundred autopsies, 99 per cent of which were tuberculous,

and the writer said that probably if greater care had been used the other one per cent would have been found tuberculous also. If that is the case, why any of us escape tuberculosis I do not see. I read these statistics in the London Lancet; there were several quoted, but this was the highest. I was glad to hear Dr. Dabney speak of carbolized glycerine. That, with a little morphia, relieves pain, but I have felt some hesitancy about doing much for the ear itself. I generally call in a specialist.

Dr. Leavell: This was a broad subject and I did not expect to include everything. I merely wanted to call the attention of the general practitioner to these post-mortem statistics and bring to their minds a subject of interest to us all, because we are the men who see these cases first and many times have to treat them whether we will or not. It is well to bear in mind the possibilities of the case and the complications that may arise, and be prepared to meet the emergencies as they arise.

I agree with Dr. Coomes that we do not do enough surgery, but where much of this is demanded I think it is wise for the general practitioner to turn the cases over to men who do more of it. There might be some mistake in the statistics, but we all know that medical statistics are very unsatisfactory. But they will at least awaken our minds to an appreciation of the subject before us. The temperature of the water, mentioned by Dr. Cheatham, is a very important point and we all might use the syringe alluded to with advantage. Dr. Weidner remarked that it is important to examine the throat and ear in all cases of infantile trouble. I make it a routine practice to examine the throat in children affected from any cause, and it is remarkable how frequently I find tonsillar involvement, perhaps a little follicle which keeps up the temperature for an inordinate length of time, certainly not compatible with the disease treated. We know that we ought to have a subsidence of temperature in gastric trouble, and the reason we do not is often that the cause is in the throat.

Dr. Cheatham: I would like to mention one thing in connection with the use of antitoxin. I have had four cases of post-diphtheritic paralysis, and antitoxin has been accused of producing cases of this kind. These are all I have seen this fall and all went safely through, and in none of them was antitoxin used. Had it been used, it would have been attributed to the serum.

Dr. Krim: I had a case where I used antitoxin on two children and did not use it on the mother. The mother had post-diphtheritic paralysis and the children did not. In another case where the antitoxin was used on the mother with two children, the child which had a very slight attack of diphtheria got a post-diphtheritic paralysis and no antitoxin had been used.

Dr. M. K. Allen: During the past week I saw a poor family in which there were eight children, two of whom had diphtheria. The doctor asked me to furnish the antitoxin, and about 2,000 units were given. I advised that 500 units be given to the children not affected. None of these other children have taken it up to this time and the two are getting well.

Dr. Dabney: I should not wonder if the reason for there being more cases of post-diphtheritic paralysis now than formerly is because more of them live than before. I have a man on hand who has paralysis of the palate, on whom I did use antitoxin. I got Dr. Leavell to give 3,000 units. He had a well-marked case, but made a recovery, but still has partial paralysis of the soft palate. But I think we have more cases of this kind now because more of them live.

The Lessened Consumption of Meat.—It is a good result of the rise in price which has recently taken place. It is an "ill wind which blows no man to good," but it is surely a blessed one that blows good to all, and there is little doubt that if we all ate less meat we would be better off both financially and physically. The sudden advance in price has served to show people that strength and health and life are possible without meat, or with much less of it than is customary. "Once a day" is becoming the rule with many who have thought that meat, often of two kinds, was necessary each meal. The fact is making quite a revolution with hotels, restaurant-keepers, cooks, and extending all the way from the effete East to the breezy plains of the far West. New dishes are being devised, and the vegetarians are having their innings. Perhaps we may relearn that our Indian corn is as good and often a better food than so much meat. But both under-nutrition and over-nutrition have their bad effects upon the system, so we should not go to either extreme in the ordering of our dietary. Palatableness is also to be considered. In general it may be said that a moderate amount of meat with a greater use of good soups, spaghetti (with a small quantity of meat or veal broth), butter and eggs, will be required by active, energetic people.—*American Medicine.*

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THE KENTUCKY STATE MEDICAL SOCIETY.

The next annual meeting of the Kentucky State Medical Society will convene in Louisville on April 22, 23, and 24, 1903. Much depends on the success of this meeting. The machinery under the new order of things is necessarily a little cumbersome because it is not fully understood, and doubtless there are many minor changes that will have to be made so as to have everything work smoothly.

The most important thing, however, for the present is for every doctor in the State to remember that he must be a member of some county medical society before he can take part in the exercises of the State medical society, that is, before he can exercise the rights of a member of the State society. Of course, he can be a spectator without being a member of either State or county society, but that amounts to nothing. Any of our doctors may get together and organize a county medical society by selecting a name for the society, preferably the name of the county, and then elect a president, vice-president, secretary and treasurer, and adopting the code of ethics of the American Medical Association. Then all of the members of such a society are entitled to all the privileges of the State society by complying with its rules, etc. It is incumbent on every doctor in the State to take an active part in the

State society meetings, as it is here that the best efforts of the profession are put forth, and all of the advances of the science and art of medicine will be elucidated.

It is needless to remind you that the best of the land shall be yours while you sojourn with us. The latch-string of every doctor's door will be on the outside, and the occupants will be anxiously awaiting your arrival. Come and bring your wives, daughters, and sweethearts, and we will care for them all.

CONSTITUTION AND BY-LAWS FOR STATE SOCIETIES.*

A Committee on Constitution and By-laws was recently appointed by the President of the American Medical Association, Dr. John A. Wyeth, in accordance with a resolution adopted at the meeting of the Association at St. Paul last June, to coöperate with the committees on reorganization that have been or may be appointed by the various State societies. There has been an expressed desire on the part of the officers, members, and committees of nearly all the State societies to comply with the recommendations of the American Medical Association in regard to a more uniform organization of the State bodies. The committee has thought best to prepare a constitution and by-laws for State societies that shall incorporate the general principles recommended to and adopted by the American Medical Association, and it submits below such constitution and by-laws.

The committee desires it to be understood that this is only suggestive. While it believes that, as a rule, practically all the articles, chapters, and sections can be adopted by most of the State societies, at the same time local conditions may make it advisable to modify them in various ways.

As will be noticed, the word "Association" has been adopted as applying to the State body and the word "Society" applying to the county. This is a minor detail and yet one of more or less importance. It has been adopted by Alabama and by some of the other State organizations.

In Article IV the committee has made no provision for honorary or associate members.

In Chapter IV, Section 2, provision is made for an apportionment of one delegate for every one hundred members. This may be too high in those States in which there are no large county societies. The object is to make the legislative body as small as is consistent with conditions, and in those

*As prepared by committee appointed by resolution of the American Medical Association, and recommended for adoption to State societies.

States in which there is a large county society, a high apportionment makes it impossible for the large societies to get a controlling interest in the legislative body.

The name "House of Delegates" has been adopted in this constitution, but it is not necessarily to be followed, the name being immaterial.

The committee desires especially to call attention to the "Council" provided in Chapter VII of the by-laws. As will be noted, this council is to be composed of men from various parts of the State, so that each part shall be fairly represented in this important body. It presupposes the division of a State into say ten districts, and in each of these districts a district society may be formed if it is thought best. Each individual councillor will have certain definite duties to perform. First, he is the censor for his district; all disputes between members, between societies, and between societies and members should be referred to the councillor and it will be his duty to settle such disputes if he can. It will be his duty to organize societies in counties in which none exist, and to stimulate to active work societies now existing, or that may be created, and to visit each society at least once annually. If the right men are selected for the position of councillor it will probably do away with the necessity of employing a paid organizer. The committee is earnest in its belief that such councillors should be paid their actual expenses in this work, believing that it will be money well invested from a financial point of view, and especially believing that medical men ought not to be asked to do such work for nothing and pay their own expenses. The majority of the committee believe that this council should have greater duties than have been given in this constitution; that it should be also the executive committee of the State society— in fact, that it should act for the State society during the interval between meetings. This suggestion is made, but it will be noticed that it is not incorporated in the by-laws. The committee believes that there should be a more or less continuous body in each State association. The probability is that the House of Delegates may be made up of entirely new members some year from what it was the year previous, and hence the necessity of a continuous body in the House of Delegates. The council is therefore made a part of the House of Delegates and its members are elected for five years. It is asked that this idea of a council be given special thought by the committees on reorganization representing the State societies.

The committee regards the creation of such a council made up of the truest, most unselfish, most willing, and most capable physicians in each State as of the very highest importance in the scheme of perfected organization. The council can, if in good hands, accomplish wonders for the profession. We beg that each State will give this innovation its most serious attention. It may be added that in those States in which it has been tried in part it has worked excellently well.

Attention is asked to the fact that the constitution is made very short, and that it contains the essential features of the new mode of organization.

The by-laws, on the other hand, contain the superstructure of regulations that have been built upon the constitution as a foundation. The committee believes that the provisions of the constitution are fundamental, and recommends that the State societies adopt them with just as little change as may be necessary to adapt them to local conditions. In the by-laws the committee has included much that is, perhaps, to be regarded as suggestive, and more that is educational in its purpose. It follows, then, that the by-laws may be considerably modified in each State without damage to the uniformity of State organization which the American Medical Association has declared to be desirable.

There are sections in the by-laws that can be left out without difficulty, and beyond doubt many of the State committees will be able to suggest points that should be covered in the by-laws in order that the medical profession may be harmoniously and strongly organized. The committee especially requests that each State committee, after full consideration of the documents herewith submitted, will transmit to this committee promptly those modifications which to them appear desirable. In this way the work of organization may be kept going with equal facility and simultaneously in all parts of the country, and by this means each State can be given the early opportunity of taking under consideration the ideas and plans of its near and distant neighbors. It will then be perceived that this committee regards it as highly important to the general welfare that all the State societies should in all things work in mutual harmony, and should be furnished the facilities for the ready intercommunication of views. Up to this time each State medical society has been an isolated community working along similar lines, but each compelled to meet the same difficulties without the great advantage of having at hand the record of experience of sister societies under like circumstances. The new scheme of medical organization has, as one fundamental principle, the federating together of the State societies. The execution of this ideal will never be of greater service than under present conditions, when each State is anxious to perfect its mode of organization.

Section 8 of Chapter IV of the by-laws is objected to by some, but the principle expounded is indubitably correct; the method of execution can no doubt be improved upon by the State committees. The same remarks hold true as to Section 12 of Chapter XII, and again the principle is one that is too important to be overlooked.

The committee has suggested that the annual dues be two dollars. The profession can profitably employ all the funds that can be raised without putting a burden on its members, but there must be a sufficient amount to render effective the work of the association. Money is essential to the success of any sort of organization, and physicians should learn that liberal contributions to well-conducted medical societies will bring tenfold benefit. Each society might well contemplate the creation of an endowment fund to be held, invested, used in emergencies of legislative contest or scientific

research, or the interest applied to special purposes. Massachusetts has accumulated in this way $47,200. Other States can readily make a beginning, and the value of such a fund as a factor in stability and as a help in emergency is simply incalculable. Above all, medical societies should gather funds to assist scientific research by direct grant of funds or by offering rewards. By doing this we will aid the forward movement of medical science, and will also convince the general public that our protestations of concern for the general welfare are genuine.

Much in the by-laws submitted may be regarded as "preaching," but it is inserted advisedly, with the sole object of arousing in the minds of each medical society member a desire for the accomplishment of greater ends than has been permitted by the customs and forms of the past. The committee earnestly desires that the State committees will continue the work of perfecting organization, actuated by that love for our profession that its ideals demand. With the medical profession well organized, medical science will more rapidly step to its appointed high place, and the profession which lives in its atmosphere will have that power and respect in the community that is its right.

J. N. McCormack, Bowling Green, Ky.,
P. Maxwell Foshay, Cleveland, Ohio,
George H. Simmons, Chicago, Ill.
Committee.

CONSTITUTION.

Article I.—Name of the Association.

The name and title of this organization shall be the ———— State Medical Association.

Article II.—Purposes of the Association.

The purpose of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of ———, and to unite with similar Associations in other States to form the American Medical Association, with a view to the extension of medical knowledge and to the advancement of medical science; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests, and to the enlightenment and direction of public opinion in regard to the great problems of State medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

Article III.—Component Societies.

Component Societies shall consist of those county medical societies which hold charters from this Association.

Article IV.—Composition of the Association.

Section 1. This Association shall consist of members, delegates and guests.

Sec. 2. Members. The members of this Association shall be the members of the component county medical societies.

Sec. 3. Delegates. Delegates shall be those members who are elected in accordance with this Constitution and By-laws to represent their respective component county societies in the House of Delegates of this Association.

Sec. 4. Guests. Any distinguished physician not a resident of this State may become a guest during any Annual Session upon invitation of the Association or its Council, and shall be accorded the privilege of participating in all of the scientific work for that session.

Article V.—House of Delegates.

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) delegates elected by the component county societies, and (2), *ex-officio*, the officers of the Association as defined in this Constitution.

Article VI.—Sections and District Societies.

The House of Delegates may provide for a division of the scientific work of the Association into appropriate sections, and for the organization of such Councillor District Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component county societies.

Article VII.—Sessions and Meetings.

Section 1. The Association shall hold an annual session, during which there shall be held daily not less than two general meetings, which shall be open to all registered members, delegates, and guests.

Sec. 2. The time and place for holding each annual session shall be fixed by the House of Delegates.

Article VIII.—Officers.

Section 1. The officers of this Association shall be a President, three Vice-presidents, a Secretary, a Treasurer, and ten Councillors.

Sec. 2. The president and vice-presidents shall be elected for a term of one year. The secretary, treasurer, and councillors shall be elected for terms of five years each, the councillors being divided into classes so that two shall be elected each year. All of these officers shall serve until their successors are elected and installed.

Sec. 3. The officers of this Association shall be elected by the House of Delegates on the morning of the last day of the annual session, but no delegate shall be eligible to any office named in the preceding section, except that of councillor, and no person shall be elected to any such office who is not in attendance upon that annual session and who has not been a member of the Association for the past two years.

Article IX.—Funds and Expenses.

Funds for meeting the expenses of the Association shall be arranged for by the House of Delegates by an equal per capita assessment upon each county society, to be fixed by the House of Delegates, by voluntary contribution, and from the profits of its publications. Funds may be appropriated by the House of Delegates to defray the expenses of the annual sessions, for publication, and for such other purposes as will promote the welfare of the Association and profession.

Article X.—Referendum.

The general meeting of the Association may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may, by a similar vote of its own members, or after a like vote of the general meeting, submit any such question to the membership of the Association for a final vote; and if the persons voting shall comprise a majority of all the members, a majority of such vote shall determine the question and be binding upon the House of Delegates.

Article XI.—The Seal.

The Association shall have a common seal, with power to break, change, or renew the same at pleasure.

Article XII.—Amendments.

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that annual session, provided that such amendment shall have been presented in open meeting at the previous annual session, and that it shall have been sent officially to each component county society at least two months before the session at which final action is to be taken.

BY-LAWS.

Chapter I.—Membership.

Section 1. All members of the component county societies shall be privileged to attend all meetings and take part in all of the proceedings of the annual sessions, and shall be eligible to any office within the gift of the Association.

Sec. 2. The name of a physician upon the properly certified roster of members, or list of delegates, of a chartered county society which has paid its annual assessment shall be *prima facie* evidence of his right to register at the annual session in the respective bodies of this Association.

Sec. 3. No person who is under sentence of suspension or expulsion from any component society of this Association, or whose name has been dropped from its roll of members, shall be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take any part in any of its proceedings until such time as he has been relieved of such disability.

Sec. 4. Each member in attendance at the annual session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified by reference to the roster of his society, he shall receive a badge which shall be evidence of his right to all the privileges of membership at that session. No member or delegate shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

Chapter II.—Annual and Special Sessions of the Association.

Section 1. The Association shall hold an annual session at such time and place as has been fixed at the preceding annual session (or as fixed by this Constitution and By-laws).

Sec. 2. Special sessions of either the Association or House of Delegates shall be called by the president at his discretion or upon petition of twenty delegates.

Chapter III.—General Meetings.

Section 1. The general meetings shall include all registered members, delegates, and guests, who shall have equal rights to participate in the proceedings and discussions; and, except guests, to vote on pending questions. Each general meeting shall be presided over by the president, or in his absence or disability, or by his request, by one of the vice-presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the president and the annual orations, and the entire time of the session, so far as may be, shall be devoted to papers and discussions relating to scientific medicine.

SEC. 2. The general meeting shall have authority to create committees or commissions for scientific investigations of special interest and importance to the profession and public, and to receive and dispose of reports of the same; but any expense in connection therewith must first be approved of by the House of Delegates.

SEC. 3. Except by special vote, the order of exercises, papers, and discussions as set forth in the official program shall be followed from day to day until it has been completed.

SEC. 4. No address or paper before the Association, except those of the president and orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject.

SEC. 5. All papers read before the Society shall be its property. Each paper shall be deposited with the secretary when read, and if this is not done it shall not be published.

CHAPTER IV.—HOUSE OF DELEGATES.

SECTION 1. The House of Delegates shall meet annually at the time and place of the annual session of the Association, and shall so fix its hours of meeting as not to conflict with the first general meeting of the Association, or with the meeting held for the address of the president and the annual orations, and so as to give delegates an opportunity to attend the other scientific proceedings and discussions so far as is consistent with their duties. But if the business interests of the Association and profession require, it may meet in advance, or remain in session after the final adjournment of the general meeting.

SEC. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every 100 members, and one for each major fraction thereof, but each county society holding a charter from this Association, which has made its annual report and paid its assessment, as provided in this Constitution and By-laws, shall be entitled to one delegate.

SEC. 3. A majority of the registered delegates shall constitute a quorum, and all of the meetings of the House of Delegates shall be open to members of the Association.

SEC. 4. It shall, through its officers, advisory council, and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each annual session a stepping-stone to future ones of higher interest.

SEC. 5. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

Sec. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical-society influence.

Sec. 7. It shall encourage post-graduate work in medical centers, as well as home study and research, and shall endeavor to have the results of the same utilized and intelligently discussed in the county societies. (With these ends in view, five years after the adoption of these By-laws, no voluntary paper shall be placed upon the annual program or be heard in the Association which has not first been read in the county society of which the author is a member.)

Sec. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the constitution and by-laws of that body in such a manner that not more than one half of the delegates shall be elected in any one year.

Sec. 9. It shall, upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-laws.

Sec. 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies, and these societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

Sec. 11. It may divide the counties of the State into ten Councillor Districts, and, when the best interest of the Association and profession will be promoted thereby, organize in each a district medical society, to meet midway between the annual sessions of this Association, and members of the chartered county societies, and none others, shall be members in such district societies. When so organized, from the presidents of such district societies shall be chosen the vice-presidents of this Association, and the presidents of the county societies of the district shall be the vice-presideuts of such district societies.

Sec. 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates, and such committees may report to the House of Delegetes in person, and may participate in the debate thereon.

Sec. 13. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

SEC. 14. It shall present a summary of its proceedings to the last general meeting of each annual session, and shall publish the same in the Transactions.

CHAPTER V.—ELECTION OF OFFICERS.

SECTION 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect.

SEC. 2. The House of Delegates on the first day of the annual session shall select a Committee on Nominations consisting of ten delegates, no two of whom shall be from the same councillor district. It shall be the duty of this committee to consult with the members of the Association and to hold one or more meetings at which the best interests of the Association and of the profession of the State for the ensuing year shall be carefully considered. The committee shall report the result of its deliberations to the House of Delegates in the shape of a ticket containing the names of three members for the office of president and of one member for each of the other offices to be filled at that annual session. No two candidates for president shall be named from the same county.

SEC. 3. The report of the nominating committee and the election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the general session.

SEC. 4. Nothing in this article shall be construed to prevent additional nominations being made by members of the House of Delegates.

CHAPTER VI.—DUTIES OF OFFICERS.

SECTION 1. The president shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver an annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the councillors in building up the county societies, and in making their work more practical and useful.

SEC. 2. The vice-presidents shall assist the president in the discharge of his duties. In the event of his death, resignation, or removal, the council shall select one of the vice-presidents to succeed him.

SEC. 3. The treasurer shall give bond for the trust reposed in him whenever the House of Delegates shall deem it requisite. He shall demand and receive all funds due the Association, together with the bequests and donations. He shall, under the direction of the House of Delegates, sell or lease any estate belonging to the Association, and execute the necessary papers; and shall, in general, subject to such direction, have the care and

management of the fiscal affairs of the Association. He shall pay money out of the treasury only on a written order of the president, countersigned by the secretary. He shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands. He shall charge upon his books the assessments against each component county society at the end of the fiscal year; he shall collect and make proper credits for the same, and perform such other duties as may be assigned to him.

Sec. 4. The secretary, acting with the Committee on Scientific Work, shall prepare and issue the programs for and attend all meetings of the Association and of the House of Delegates, and he shall keep minutes of their respective proceedings in separate record books. He shall be custodian of all record books and papers belonging to the Association, except such as properly belong to the treasurer, and shall keep account of and promptly turn over to the treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the annual sessions. He shall keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society, and upon request shall transmit a copy of this list to the American Medical Association for publication. In so far as it is in his power he shall use the printed matter, correspondence, and influence of his office to aid the councillors in the organization and improvement of the county societies, and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall act as chairman of the Committees on Scientific Work and on Publication. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient, it is desirable that he should receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

Chapter VII.—Council.

Section 1. The Council shall hold daily meetings during the annual session of the Association and at such other times as necessity may require, subject to the call of the chairman or on petition of three councillors. It shall meet on the last day of the annual session of the Association for reorganization and for the outlining of work for the ensuing year. At this meeting it shall elect a chairman and secretary, and it shall keep a permanent record of its proceedings. It shall, through its chairman,

make an annual report to the House of Delegates at such time as may be provided.

Sec. 2. Each councillor shall be organizer, peacemaker, and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession, and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his doings and of the condition of the profession of each county in his district to each annual session of the House of Delegates. The necessary traveling expenses incurred by such councillor in the line of the duties herein imposed may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expense in attending the annual session of the Association.

Sec. 3. Collectively the Council shall be the Board of Censors of the Association. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates or the general meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or of a county society, upon which an appeal is taken from the decision of an individual councillor. Its decision in all such cases shall be final.

Sec. 4. The Council shall have the right to communicate the views of the profession and of the Association in regard to health, sanitation, and other important matters to the public and the lay press. Such communications shall be officially signed by the chairman and secretary of the Council, as such.

Chapter VIII.—Committees.

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Publication.

A Committee on Nominations.

A Committee of Arrangements, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members, of which the secretary shall be a member and chairman, and shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instructions of the House of Delegates or of the Association, or to the provisions of the Constitution and By-laws. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers, discussions, and

other business shall be presented, which shall be adhered to by the Association as nearly as practicable.

Sec. 3. The Committee on Public Policy and Legislation shall consist of three members and the president and secretary. Under the direction of the House of Delegates it shall represent the Association in securing and enforcing legislation in the interest of the public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall utilize every organized influence of the profession to promote the general influence in local, State, and national affairs and elections. Its work shall be done with the dignity becoming a great profession and with that wisdom which will make effective its power and influence. It shall have authority to be heard before the entire Association upon questions of great concern at such time as may be arranged during the annual session.

Sec. 4. The Committee on Publication shall consist of three members, of which the secretary shall be one and chairman, and shall have referred to it all reports on scientific subjects, and all scientific papers and discussions heard before the Association. It shall be empowered to curtail or abstract papers and discussions, and any paper referred to it which may not be suitable for publication in the Transactions may be returned to the author. The committee shall have authority to arrange for the publication and distribution of the Transactions after receiving competitive bids, and shall use diligence in getting them into the hands of the members. All papers read before the Association shall be the property of the Association.

Sec. 5. The Committee on Nominations shall be appointed and perform its duties in accordance with the provisions of Chapter —— Sec. —— of these By-laws.

Sec. 6. The Committee of Arrangements shall consist of the component society in the territory in which the annual session is to be held. It shall, by committees of its own selection, provide suitable accommodations for the meeting-places of the Association and of the House of Delegates, and of their respective committees, and shall have general charge of all the arrangements. Its chairman shall report an outline of the arrangements to the secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

Chapter IX.—Assessments and Expenditures.

Section 1. An assessment of two dollars per capita on the membership of the component societies is hereby made the annual dues of this Association. The secretary of each county society shall forward its assessment together with its roster of all officers and members, list of delegates, and list of non-affiliated physicians of the county to the secretary of this Association thirty days in advance of each annual session (or on or before some specified date).

SEC. 2. Any county society which fails to pay its assessment, or make the reports required, on or before the date above stated, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

SEC. 3. All motions or resolutions appropriating money shall specify a definite amount, or so much thereof as may be necessary for the purpose indicated, and must be approved by the Council and House of Delegates on a call of the ayes and noes.

CHAPTER X.—RULES OF CONDUCT.

The principles set forth in the Code of Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XI.—RULES OF ORDER.

The deliberations of this Association shall be governed by parliamentary usage as contained in Robert's Rules of Order, unless otherwise determined by a vote of its respective bodies.

CHAPTER XII.—COUNTY SOCIETIES.

SECTION 1. All county societies now in affiliation with the State Association or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-laws, shall, upon application to the House of Delegates, receive a charter from and become a component part of this Association.

SEC. 2. As rapidly as can be done after the adoption of this Constitution and By-laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

SEC. 3. Charters shall be issued only upon approval of the House of Delegates and shall be signed by the president and secretary of this Association. The House of Delegates shall have authority to revoke the charter of any component county society whose actions are in conflict with the letter or spirit of this Constitution and By-laws.

SEC. 4. Only one component medical society shall be chartered in any county. When more than one county society exists, friendly overtures and concessions shall be made, with the aid of the councillor for the district if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

SEC. 5. Each county society shall judge of the qualification of its own members, but, as such societies are the only portals to this Association and

to the American Medical Association, every reputable and legally registered physician who is practicing, or who will agree to practice, non-sectarian medicine, shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

SEC. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right of appeal to the Council and to the House of Delegates.

SEC. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a board and as individual councillors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

SEC. 8. When a member in good standing in a component society moves to another county in this State, his name, upon request, shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

SEC. 9. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

SEC. 10. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral, and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

SEC. 11. Frequent meetings shall be encouraged, and the most attractive programs arranged that are possible. The younger members shall be especially encouraged to do post-graduate and original research work, and to give the society the first benefit of such labors. Official position and other preferments shall be unstintingly given to such members.

SEC. 12. At some meeting in advance of the annual session of this Association each county society shall elect a delegate or delegates to represent it in the House of Delegates of this Association, in the proportion of one delegate to each one hundred members or fraction thereof, and the secretary of the society shall send a list of such delegates to the secretary of this Association at least ten days before the annual session.

SEC. 13. The secretary of each county society shall keep a roster of its members, and a list of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college, and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. He shall furnish an official report containing such information, upon blanks supplied him for the purpose, to the secretary of this Association, thirty days in advance of each

annual session, and at the same time that the dues accruing from the annual assessment are sent in. In keeping such roster the secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

Chapter XIII.—Amendments.

These By-laws may be amended at any annual session by a majority vote of all delegates present at that session, after the amendment has laid upon the table for one day.

Current Surgical and Medical Selections.

The Use of Argyrol in the Treatment of Acute Gonorrhea.—Swinburne (Medical Record, New York, October 11, 1902) states that argyrol comes in dark-brown scales, is very hygroscopic, and is soluble to almost any degree in water. The solutions keep well without deteriorating. It contains nearly thirty per cent of silver. It possesses one drawback, and that is its staining properties. On account of this it has to be very carefully used, for though when treated with boiling water the stains are readily removed, yet it is distinctly disagreeable to the patient to get it on his underwear. The author has treated with this drug at a dispensary upward of three hundred and fifty cases having gonococci. In the beginning the patients were given a single daily injection of two and a half to three drachms of a one per cent solution, which was held by the patient for ten minutes in the anterior urethra. Cases in which the posterior urethra was involved received in addition a deep instillation of an ounce of the solution through a small flexible catheter, which was then withdrawn and the solution urinated out. Those cases that came regularly recovered completely in a moderately short time. After these injections there was absolutely no reaction and no pain.

In private practice the author uses several methods according to different circumstances, such as the severity of the disease, the chance of aborting the disease, and the patient's ability to come frequently or not. Treatment may be daily, and in such cases irrigation with one quart of hot one to one thousand or one to two thousand solution of argyrol, followed by a two or five per cent injection or instillation, as the case demands, with the patient's use of a two per cent solution at home, once or twice a day in addition, or it may be no injections are used by the patient at home. Some patients may only be able to come once or twice a week—they get

the same treatment when they come to the office, and use a two per cent solution two or three times a day at home. In chronic cases good results follow the use of this drug. Cases needing sounds get now, as a lubricant on the sound, a five per cent ointment made with adeps lanæ as a base, the argyrol being rubbed up with water just enough to render it smooth before incorporating it with the ointment. Too great stress can not be laid on the painlessness of the drug. A ten per cent solution dropped in the eye hardly produces a sensation of warmth. To sum up, this drug has decided gonococcidal powers; it has a decided effect in reducing and allaying the inflammation of the disease; it can be used safely in almost any strength and at any stage of the disease; the injection can be repeated almost as frequently as the fancy of the physican dictates; the author has not seen any unpleasant symptoms due to the use of the drug and believes it to be one of the most valuable remedies given to the profession in recent years.—*The Journal of the American Medical Sciences.*

Rapid Development of a Fibrosarcoma of the Tonsil.—At a meeting of the Chicago Laryngological and Climatological Association, April 21, 1902 (Journal of the American Medical Association, May 24, 1902), Dr. Charles M. Robertson narrated the case of a farmer, aged sixty-two years, who acquired an extensive fibrosarcoma of the tonsil and soft palate, which began in a small swelling above the left tonsil a few days after that organ had been pricked with a straw in use for picking the teeth. By the end of eight weeks it had developed into a large tumor occupying the left palatal arch, well down to its base, involving the tonsil and the side of the pharynx as far as the epiglottis, and up behind the edge of the hard palate as far as the left Eustachian tube. It extended forward into the mouth to within one inch of the incisor teeth. The following week the growth was removed under chloroform anesthesia, and was found to be encapsulated. Twenty months had passed without recurrence.—*Ibid.*

Rodent Ulcer: Its Pathology and Treatment.—(By J. D. McFeely, F. R. C. S., British Medical Journal, November 8th.) Rodent ulcer differs from epithelioma in that it is essentially a local disease, and does not show metastases, either in contiguous lymphatic glands or elsewhere beyond the seat of the primary infection. Even when left untreated it shows a marked tendency at some part to take on a separative process, while progressing slowly and steadily in another direction. During its progress it shows a marked tendency to avoid hair follicles. The deeper layers of the cuticle are attacked prior to the superficial epithelial layer. The exudate, which is so common as to be looked upon as almost pathognomonic of the disease, seems to have a tendency to produce a form of self-infection. All caustics stimulate true carcinomata, while in many cases of rodent ulcer they retard the growth. The rodent ulcer is as amenable to treatment without the probability of recurrence as any other simple or specific ulcer. The author has had great success with formalin. If the ulcer

is not large or easily accessible, pure formalin is applied; if a second or third application is necessary formalin glycerin is used. If the patient objects to being anesthetized, a local anesthetic may be used, an injection of morphine being given ten minutes after the application, if the pain is severe. In severe cases of long standing the patient should be anesthetized, and all diseased tissue removed by knife or curette. Formalin is then used, the patient being kept fully under the anesthetic for about five minutes afterward. The formalin should not be allowed to evaporate. The blackish slough which forms should be allowed to separate spontaneously. Formalin is practically non-toxic. How it stops all proliferation in diseased tissue or malignant growths, without destroying the vitality of normal cells, seems incomprehensible, yet the author is convinced that it does so. He has encouraging results from its use in the treatment of truly malignant growths.—*New York Medical Journal.*

THREE CASES OF HOUR-GLASS CONTRACTION OF THE STOMACH, TREATED BY OPERATION.—(By H. Gilford, F. R. C. S., British Medical Journal, November 8th.) The ideal operation for the treatment of hour-glass contraction of the stomach is one which removes the deformity and restores the organ to its natural shape. This must, of course, be almost impossible, because the risk to the patient of carrying out such an extensive plastic operation would more than counterbalance the good to be obtained from it. Perhaps the nearest approach that is feasible toward this ideal is the simple, effectual method of Heinike and Mikulicz. This was the operation which was successfully carried out in the three cases here reported. To insure success the transverse incision must be of such a length that when it is turned into a vertical one ample room is left, not only for the passage of stomach contents, but for future contraction. It is of equal importance that those two frequent complications of hour-glass contraction, gastric ulcer and stenosis of the pylorus, should also be dealt with.—*Ibid.*

Special Notice.

Notwithstanding the large number of HYPOPHOSPHITES on the market, it is quite difficult to obtain a uniform and reliable syrup. "ROBINSON'S" is a highly elegant preparation, and possesses an advantage over some others in that it holds the various salts, including iron, quinine, and strychnine, etc., in PERFECT SOLUTION, and is not liable to the formation of fungous growths. (See third cover page.)

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AMERICAN PRACTITIONER AND NEWS.

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

CARCINOMA IN WOMEN: SOME CLINICAL AND PATHOLOGICAL ASPECTS.*

BY JOHN R. WATHEN, A. B., M. D.

Professor of Clinical Gynecology in Kentucky School of Medicine; Surgeon to St. Anthony's Hospital, Louisville City Hospital, and Kentucky School of Medicine Hospital, Louisville, Kentucky.

Cancer has a tendency to affect certain organs in women to an extent and with a relative frequency unknown to the other sex, and the clinical facts in typical cases of cancer of the uterus distinguish it from the same malignant disease of any other organ. The frequency of its occurrence, the sex of its victims, the pitiful character of its course from the social point of view, lend it an interest and a pathos almost entirely its own.

There is a general and a special aspect of the subject, to which I wish to call attention, namely, (1) the investigation of the etiology and pathology of cancer in general, and (2) the consideration of cancer of the uterus in particular, with its future treatment and clinical observations.

There is such a vast amount of literature upon the etiology and pathology of cancer that I will be compelled to select only a few opinions of the most typical authorities.

Hegar, in his recent work on the etiology of malignant tumors, says that we have made such progress that we will soon be able to formulate our questions for future investigators, and calls attention to respects in which the theories of Thiersch and Cohnheim, the two most frequently

* Read before the Louisville Clinical Society. For discussion see page 66.

accepted explanations of the genesis of carcinoma, stand in direct opposition to one another.

Thiersch lays chief stress upon the failure of that resistance of the tissue of cells which is normally brought to bear by the tissues. He must therefore assume that the ordinary epithelial cells possess a great energy toward proliferation, and that this energy is brought into play by a depression of the power of resistance of the tissues.

According to Cohnheim such a strong proliferation as is necessary to the formation of the tumor can not be effected by the cells of the tissues post-partum. Only embryonic cells are capable of performing such a task, and it is these which form the basis of malignant tumors when they still remain behind in the body with their energy retained in full. Both authorities leave out of consideration the fact that the cells of a malignant growth increase rapidly, but are never completely developed, and the capacity for differentiation on the part of embryonic cells is their most remarkable characteristic. We know that the cell acquires a peculiar energy which it had not before possessed, all of which brings us back to the rapid proliferation, the depression of the powers of resistance, and the decrease of the faculty of differentiation, but how do these states come about, or what are some of the causes which rob the cells of their capacity for arriving at complete development?

The most recent investigations have shaken, or shattered, according to that great authority Dr. Freund, of Strassburg, the whole blastodermic or embryological theory as to the origin of cancer. At the close of a paper of this author on cancer, he says: "I myself can no longer share in this serious and difficult work. To perform it becomes the task of a younger generation, for whom I wish from my heart success in the conquest of this promised land—the cure of cancer of the uterus. I would be happy if, like Moses, I were permitted to gaze upon it from afar."

Is the cause of cancer a vegetable parasite or blastomycete, as suggested by Russell, San Felice, and others, or is it true that the cancer bodies of Gaylord are animal parasites? Or may it not be an infectious disease like syphilis or tuberculosis? Or lastly, is the cause still unknown or merely guessed at as possibly the result of local or general changes in the nervous system governing the growth, the nutrition, and involution of organs or tissues?

Leopold, of Dresden, after much observation and experimentation, reported before the Congress of German Gynecologists held last year

the results of his labors. He implanted into a rat tissue from a carcinomous ovary, and the animal died in sixty-one days from a tumor the size of a walnut, which was found to be an adeno-sarcoma. Thus it is seen that Leopold, as others, in order to support his theory must give up the distinction between carcinoma and sarcoma.

This reminds us of the old darkey who was a witness in a murder trial; when told by the lawyer that his theories as to the murder did not coincide with the facts in the case, he replied—"*Then so much the worse for the facts!*"

There have been many other theories advanced of a miscellaneous nature, as the eating of too much animal food, the influence of woods and rivers, cancer localities, etc.

A recent suggestion is that arsenic might be the cause, as we probably take large quantities into our system, voluntarily or otherwise.

When we come to a consideration of cancer of the uterus in particular we are at once struck by the fact that so little has been accomplished in the way of a permanent cure, and inquire the reasons for the poor success of surgery with these cases. Possibly the better method to reduce the immediate and remote mortality would be a tendency to operate only on those we diagnose early, and do less of the complete dissections of pelvic lymphatic glands in the late cases which have progressed beyond the aid of surgery to effect a permanent cure.

The general practitioner should be more on the lookout for malignancy in women, and the women themselves better educated along the diagnostic lines to aid in its early discovery, and then we must keep in mind that it is easy to place too great reliance on mere microscopic diagnosis. It is, for example, impossible to diagnose between benign adenoma of the body of the uterus and the malignant form of the disease by means of the microscope alone; the distinction is purely clinical. How, then, can early diagnosis of carcinoma of the cervix be established clinically, when all acknowledge that hemorrhage, odor, pain, etc., are so misleading?

I would answer that the friability of the tissue in cancer of the cervix is almost pathognomonic of this malignant growth. The presence of friable tissue in the cervix indicates the existence of disease which is clinically malignant, whatever the microscope may say. What we need at present is more clinical observations in association with laboratory research, and only by the happy union of the two, which

seem with present tendencies to grow farther apart each day, can we obtain the strength of united thought. Too many men are surgeons alone, laboratory men exclusively, etc., to attain the highest results along the lines which would benefit humanity, not only in cancer but in other departments of medicine and surgery.

All honest and enlightened human effort should be welcomed, as the greatest discoveries and advances in medicine, science, etc., have come from the unknown of some secluded spot.

Our distinguished visitor to this country, Dr. Lorenz, of Vienna, in his recent address before the Northwestern Medical College, of Chicago, said: "At the present time hundreds of wise men of all nations are studying the question whether cancer, this most terrible scourge of mankind, is of parasitic origin or not. If cancer is of parasitic origin, as one must hope, and as many of the most respected surgeons believe, then it may be possible that a curing antitoxin will be found. May the twentieth century give to the world, burdened with pain and death, this saviour of mankind! The nation which gives birth to this genius will become the first nation of the world through this one deed."

The distinguished Prof. Sinclair, in a recent address before the British Medical Association, in speaking of cancer, closed his remarks with the following: "I will content myself with saying that my earnest hope and desire is that some of our younger men, with more energy, better opportunities, starting on a higher level of knowledge, will professedly take up this great enterprise and see whether by calm, industrious, and enlightened clinical observation, alone or collectively, they can discover the cause and the remedy for this mysterious and dreadful malady."

LOUISVILLE.

TOTAL EXTIRPATION OF THE PROSTATE.*

BY MR. P. J. FREYER.

One year ago he had published four cases of total extirpation of the prostate with its capsule by a new suprapubic method. A further series of ten cases, making fourteen in all, had been published only the week before. The whole of the cases had been absolutely satisfactory save one, in which death had occurred on the twenty-fourth day from acute mania. He had now seven more cases to report, with a death in one on the ninth day from sudden syncope after having progressed perfectly favorably up to that date. He referred in detail to each of the cases, and the parts removed from the whole series of twenty-one cases were presented to the Section. For purposes of description, he divided the specimens of excised enlarged prostate into three classes: (1) those in which the lateral lobes had separated along the superior commissure only, the prostate coming away entire and leaving the urethra, and probably in most cases the ejaculatory ducts, intact; (2) those in which the lateral lobes had separated along both their superior and inferior commissures and had been removed separately, leaving the urethra and the ejaculatory ducts uninjured; and (3) those in which the lobes had not separated along either commissure, the prostate being removed as a whole after the urethra and the ejaculatory ducts had been torn across, and in some instances the prostatic urethra within either partially or entirely removed. It would be found in most cases of this type that the prostate was encircled by a thin girdle of fibrous and muscular tissue, part of the prostatic sheath, so that in these not only had the prostate in its capsule been removed but in addition an actual layer of the sheath had come away.

Professor S. Alexander (New York) wished to draw attention to three points. First, as to what was the true capsule of the prostate; second, as to what parts of the prostate caused obstruction; and third, as to the important and marked distinction there was between the lateral lobes of the prostate and that part which was to be found below and behind the seminal ducts. The true capsule of the prostate was that which embraced the whole of the prostatic tissue, and was derived from the fibrous pelvic fascia. By a series of beautiful photographs of transverse and sagittal sections of the enlarged prostate he demon-

*A discussion before the British Medical Association. Reported in the London Lancet.

strated very clearly the extent of its sheath, showing that it was wanting on the bladder side. Within this true capsule could be seen the lateral lobes, surrounded by a special envelope of their own. As to what parts of the prostate caused obstruction, it was essential to recognize that the enlargement was entirely in that part above the urethra, and never in the portion in front of the seminal ducts. The urethra was thus always depressed, and the larger the prostate the greater the depression. The anatomical distinction of that portion of the enlarged prostate lying below and behind the seminal ducts from that lying above the urethra was important, for this former part never caused obstruction, the so-called middle lobe being in reality always an outgrowth of a lateral lobe, but it was that part of the prostate liable to carcinoma. He was a strong advocate of the perineal route for removal of the prostate.

Professor Parker Syms (New York) said that he had in his earlier operations approached the prostate by the suprapubic route, but he had come to the conclusion, from anatomical considerations, that the prostate was rather a perineal organ than one connected with the urinary bladder, and that the only proper route by which to reach it was through the perineum. This was the direct, rational, and anatomical course, and left the bladder entirely uninjured. He was sure that the surgeon should be guided by clinical aspects rather than by mere rectal examination. Residual urine and cystitis were certain to place the patient in jeopardy. Whatever might be the amount and form of the enlargement of the prostate, he believed that every enlarged prostate could be removed through the perineum. He demonstrated a special instrument which he had devised to render easy traction upon the prostate during its removal. It consisted of a rubber tube, to the further end of which was attached a collapsible rubber bulb, rather of an umbrella shape. The apparatus was introduced into the bladder through the urethra and the terminal bulb was then inflated, thus producing a soft but very efficient retractor. It further tended to arrest hemorrhage during the progress of the enucleation. He had operated on twenty-one cases. All the patients except one had cystitis previous to operation; two had calculi, and in one case there were fifty-four ounces of residual urine and the patient was delirious, with a temperature of 104° F. He had lost no patient and all were completely relieved, with no permanent incontinence of urine.

Mr. Reginald Harrison (London) based his remarks on seven specimens of enlarged prostate which had been removed by the suprapubic route. In five the results were entirely satisfactory, the patients recovering voluntary power over micturition. In the other two instances the results were not so good. In one a cicatricial contraction occurred in the neighborhood of the deep urethra, and in the other carcinoma of the prostate supervened. He had been much struck years ago by the amount of relief that many persons who were cut for stone obtained by the so-called accidental removal of portions of an enlarged prostate.

Sir William Macewen (Glasgow) stated that after he had seen the large portions of the prostate which had been removed and exhibited by McGill, of Leeds, he had practiced the suprapubic method, but in one instance, because he had made a perineal incision for drainage, and had also noticed the benefit of the partial removal of the prostate in lithotomy, he began to make use of the perineal route. He not infrequently first performed perineal section, draining the bladder, and subsequently shelled out the lateral lobes by the same route, these not uncommonly shrinking after the section and before the enucleation.

Mr. Jordan Lloyd (Birmingham) thought that the discussion had cleared up several doubtful points. Prostates could be removed, and the series of specimens shown by Mr. Freyer demonstrated this absolutely. The aim of the surgeon should be to arrive at an operation with the lowest mortality, shortest convalescence, and best after-results.

Dr. W. E. Hadden (Portadown) and Dr. G. B. Ferguson (Cheltenham) having made a few remarks Mr. Freyer replied, congratulating the Section on the eminently practical tone of the discussion, and particularly on the excellent discourses of Professor Alexander and Professor Syms. He would like again to emphasize his belief in the existence of two separate capsules to the prostate, so graphically described by Sir Henry Thompson many years ago as the result of seventy dissections. He had no monopoly in prostatectomy, but he considered that partial removal had had its day, and that his method was the best of the complete operation, as evidenced by what was removed and the entirely satisfactory after-results.

MYELOPATHIC ALBUMOSURIA.*

BY T. R. BRADSHAW, B. A., M. D. DUB., M. R. C. P. LOND.

Physician to the Liverpool Royal Infirmary; Lecturer on Clinical Medicine in Liverpool University College; Consulting Physician to the Samaritan Hospital for Women, Liverpool.

As the art of medicine advances progress in nosology takes place along two different lines. Sometimes, as the boundaries of our knowledge are extended, we are led to recognize that morbid conditions, apparently diverse, are essentially identical, as when lupus, struma, phthisis, and pulmonary cirrhosis, at one time looked upon as distinct diseases, were found to be only various manifestations of the action of the same bacillus. But the establishment of identity in place of apparent diversity is comparatively rare; far more frequent is the separation of morbid processes which have been regarded as identical. Thus measles came to be distinguished from scarlet fever, typhoid fever from typhus fever, locomotor ataxy from paraplegia, and the different kinds of paraplegia from one another. Quite recently Dr. A. E. Garrod[1] expressed his conviction that under the term "rheumatoid arthritis" at least two distinct diseases are included. In fact, with few exceptions, progress in pathology and diagnosis has in the past meant the recognition of diversity in place of identity, and there can be little doubt that progress in the future will be along similar lines. When it has been established that two morbid entities have been included under a common designation it is usual to regard one of them as a new disease and to mark its individuality by labeling it with a new name. In this sense I claim that the disease I am about to describe is a new disease, and I have marked out its individuality by naming it "myelopathic albumosuria."

History. From ancient times physicians have recognized a disease characterized by softening and deformity of the bones, a disease which has long been known as "osteomalacia" or "mollities ossium." With the advance of clinical and pathological observation it came to be recognized that cases of softening of the bone in adults differed materially from one another, both clinically and anatomically, and might be divided broadly into two groups. In one group the patients were young and mostly women; recovery, temporary or permanent, was

*A paper read before the Liverpool Medical Institution on March 27, 1902. Reported in London Lancet.

1. A Discussion on Chronic Diseases of the Joints, &c., Brit. Med. Jour., vol. ii, 1901, p. 1035.

not infrequent, and the essential lesion was absorption of lime salts and the replacement of the bony structure by a simpler type of connective tissue. In the other group the patients were generally men in the second half of life; recovery did not take place, and the essential lesion was the invasion of the bone by cellular growths of the connective-tissue type, either generally diffused throughout the bone or forming circumscribed tumors and leading to absorption of the osseous structure. For the former state the name of "osteomalacia" was retained, for the latter the term "multiple myeloma," which was introduced by von Rustizky in 1873[2], was adopted. About twelve years later it was found that in a case which was afterward proved by a necropsy to be one of multiple myeloma the urine contained a peculiar body chemically allied to albumin and known as Bence Jones' albumose, and by a hasty generalization it was inferred that this body was always present in multiple myeloma and would serve to distinguish it from mollities ossium.[3] Finally, it came to be recognized that albumosuria was not a feature in all cases of multiple myeloma, that it was only present in some of them, and that, although in all the fatal cases of albumosuria which were examined some extensive lesion of the marrow and generally of the bones was found, the exact nature of the lesion was by no means identical in all cases.[4] The cases which possess these features—viz., that they have albumose in the urine and some affection of the marrow—seem to form a group of themselves and to them I apply the designation "myelopathic albumosuria."

The number of cases of this disease which I have been able to collect from the literature or from personal investigation is about twenty. Of the patients thus affected I have myself examined three, and of two other cases I have received samples of the urine for examination. The first patient whom I saw was a man in Liverpool, whom I had under observation for nearly a year and whose case I have published at great length elsewhere[5]; the second was that of a man under the care of Dr. F. Parkes Weber, who kindly permitted me to examine him, in the German Hospital at Dalston; the third was that of a physician of eminence in Lyons, who wrote to consult me about his condition, and whom I visited at his home in Lyons in the summer of 1901.[6] One of

2. Deutsche Zeitschrift für Chirurgie, Band iii., S. 163, 1873.

3. O. Kahler: Zur Symptomatologie des Multiplen Myeloms, &c., Prager Medicinische Wochenschrift, 1889, N. 4, 5.

4. Bradshaw: A Case of Albumosuria, &c., Transactions of the Royal Medical and Chirurgical Society, 1898, p. 259. Bradshaw and Warrington: Myelopathic Albumosuria, ibid., 1899.

5. Ibid.

6. Bradshaw: The Evolution of Myelopathic Albumosuria, Brit. Med. Journal, July 13, 1901.

the patients whom I did not see, but whose urine I was permitted frequently to analyze, was a gentleman residing near Liverpool, who was seen in consultation by my colleague, Dr. James Barr.[7]

Etiology. Of the causes which predispose to myelopathic albumosuria we know nothing except that its incidence is in the second half of life and that it has been more often met with in the male than in the female. In the youngest recorded case the patient's age was thirty-six years, and in the oldest it was seventy-one years; while of eighteen cases in which the age is stated fourteen were between thirty-five and fifty-five years, being pretty evenly distributed over the intervening period. Of twenty cases in which the sex is stated fifteen were males and five were females. One patient whom I saw was actually the subject of a gumma in the tongue, and another was stated to have had syphilis in early life, but hitherto there have not been sufficient grounds to indicate a causal relation between the two diseases.

Pathological Anatomy. The morbid anatomy and pathology may be best considered under two heads—viz., the changes in the skeleton and the changes in the urine. The former consist in an invasion of certain bones by a soft mass of new growth, the proper osseous tissue undergoing absorption. The growth may be confined to the interior of the bone, being limited by the compact tissue, or it may burst through the latter and form tumors of considerable size in the adjacent structures. As to the bones chiefly affected, the ribs, sternum, and vertebral bodies seem always to suffer, less frequently the pelvic bones and the skull, and in only one or two instances have any of the long bones of the extremities been involved. The new growth is gelatinous, soft, and vascular, and has a general resemblance to red marrow. Microscopically, it is seen to be composed chiefly of round cells, with little or no intercellular substance. Fat globules are often present in the cells and occasionally cells of a higher type are met with; thus, spindle-cells may be noticed here and there, and in one case islets of cartilage are stated to have been present. In structure and clinical progress the growth seems to be closely allied to sarcoma, but it differs from the common forms of sarcoma in its invasion of several parts of the skeleton simultaneously and in its showing no tendency to form metastases in other parts or organs. As to the most appropriate designation for this kind of growth, I think the term "multiple myeloma" which was introduced by von Rustizky in 1873, and has been adopted by most of the

7. Case of Myelopathic Albumosuria, Liverpool Medico-Chirurgical Journal, March, 1901.

German authorities, is the most appropriate. Its position and structure lead us to infer that it is really an outgrowth of hyperplasia of the normal marrow, while its independent appearance in various parts of the skeleton is fairly well indicated by the appellation "multiple." The condition of the urine, which I consider to be pathognomonic of this disease, I have so often described before[8] that I need only refer to it briefly. It contains a proteid closely resembling albumin, but differing from albumin in certain particulars, of which the following are the most obvious: (1) It coagulates at a remarkably low temperature—viz., 58° C.; (2) the coagulum is to a great extent dissolved at the boiling-point and reappears on cooling; (3) the coagulum which forms on treatment with cold nitric acid also dissolves on boiling and returns on cooling; and (4) it is readily coagulated by hydrochloric acid.

As I have already said it was at one time supposed that multiple myeloma was always attended by albumosuria, the apparent exceptions being attributed to errors of observation. This view I never accepted and the most recent observations have fully disproved it. On the other hand, I am not aware of any instance in which persistent albumosuria, such as I have described, was present, and the bones and marrow have been proved to be normal by post-mortem examination.

Symptoms. The onset of the disease is insidious; the earliest symptoms observed may be either those associated with the state of the bones or those associated with the state of the urine. As a rule it is the bone condition which first leads the sufferer to seek medical advice, though there can be little doubt that the characteristic reaction of the urine would be found at a very early period if it were looked for. Kahler's patient,[9] who was a medical practitioner, had albumosuria for several years. In my first case the patient observed that his urine was milky many months before he felt ill, and the patient I saw in Lyons had been passing albumose for nearly a year and a half before he had to relinquish an active practice.

As regards the manner in which the albumose makes its appearance there is only one observation on record, and that is in connection with the case at Lyons. This patient had an attack of pneumonia in December, 1899, from which he made a good recovery, but during convalescence traces of proteid were discovered in the urine and the quantity gradually increased until it was as much as ten per mille. If,

8. Bradshaw: Discussion on the Proteids in Urine. Transactions of the Pathological Society, vol. li, part 2, 1900, &c.

9. See note 3.

therefore, we may be permitted to generalize from this single case, we may state that although in the developed disease the albumose is abundant it is first excreted in traces and the amount gradually increases.

It is obvious that the abnormal state of the urine is not likely to be discovered until the sufferer becomes a patient, and it is generally the condition of the bones or the associated general debility which leads him to consult a medical man. In fact, pains in the back and sides, suggesting rheumatism or neuralgia, together with progressive anemia and weakness, are in most instances the earliest symptoms of the complaint. The pains are generally severe; they are aggravated by movement and are accompanied by local tenderness. A remarkable feature is that they vary in position and intensity from day to day and from week to week, and the sufferer may sometimes experience so great and prolonged a relief that the friends, and even the medical attendant, may be deluded into the belief that a real improvement is taking place. The patient in my first case, after being confined to bed for weeks in great agony, recovered sufficiently to go into the country, where he used to walk in the garden; but before many months the pains returned and were ended only by death. Physical examination of the bones yields results which differ considerably in different cases. In my first case no enlargement or tumor was felt, but the spine was fixed and bent, while the ribs seemed to have lost their natural rigidity, so that the chest walls seemed to yield under the pressure of the hand or of the stethoscope, and irregularities suggesting fractures could be felt by the finger. In the other two cases which I have seen distinct tumors were found in relation to the bones. The Lyonese physician had a semi-fluctuating swelling of about the size of a large hen's egg in connection with one of the ribs, and the X-rays showed that there was a breach of continuity of the bone. The only tender spot I could find was on one of the ribs over the precordium. The spinal column was quite movable. Anemia and lassitude are profound towards the close, but present no special characteristics.

Prognosis. The course of the disease is from bad to worse, though, as I have already stated, it is often not uniformly so It is rare for life to be prolonged for a year after the symptoms are sufficiently pronounced to lead the patient to seek advice, but in Kahler's case it is alleged that some symptoms were present eight years before death. The prognosis is pretty much the same as in malignant disease; death may be due to

exhaustion or to some intercurrent disorder, of which pneumonia seems to be not infrequent. My first patient developed pneumonia while I was watching his case, but recovered, to die six months later worn out by pain, weakness, and diarrhea. The Lyonese patient died a week after my visit from acute pneumonia, while the bone disease seemed to be not yet far advanced. It is an interesting fact that in the former case I was able to recognize the presence of albumose in the pneumonic sputum.

Chemistry and Pathology. The exact chemical nature of the proteid in the urine and its relation to the changes in the bones present problems of the highest interest for our consideration. The earlier observers, Kühne and Huppert, identified it with hetero-albumose, one of the products of the peptic digestion of albumin, but Matthes, of Jena, has proved conclusively that it is not hetero-albumose, and that it is distinct from all other known proteids being, in fact, a body *sui generis*.[10] It seems in some respects to occupy a position intermediate between the native albumins and the proto-albumoses. Many elaborate chemical investigations into its nature have been carried out, the most important being those of Matthes, of Magnus Levy,[11] and of Gutterink and de Graaff.[12] The two latter experimentalists have recently succeeded in obtaining abundant crystals of the body by a method analogous to that by which crystals of albumin can be obtained from the serum of the horse. This is interesting, as the substance in question is the only human proteid which has up to the present been obtained in a crystalline form and it may indicate that it is less complex than serum albumin. This conclusion is borne out by the observation of Magnus Levy, that the body in question does not yield hetero-albumose when submitted to artificial digestion, from which we may infer that it does not contain the hetero-albumose radicle which is a constituent of normal albumin. In our present imperfect knowledge of the constitution of the proteids we can safely only affirm that the substance is one closely allied to albumin and probably is somewhat less complex in its constitution, and we may conveniently designate it as the Bence Jones albumose, from the chemist who first described it. As regards the mode of formation of the substance three different views have been put forward: 1. The old view, which has been recently

10. Neumeister: Lehrbuch der Physiologischen Chemie, S. 805.

11. Ueber den Bence Jones'chen Eiweisskörper, Hoppe-Seyler's Zeitschrift für Physiologische Chemie, Band xxx., S. 200.

12. Ueber die Darstellung einer Krystallinischen Harnalbumose, ibid., Band xxxiv., S. 393.

revived by Magnus Levy, was that it is derived directly from the proteid constituents of the food, which for some reason fail to undergo the normal metabolism. This view ignores the fact which lies at the root of the whole problem, viz., the association of the albumose with disease of the bones and marrow. 2. Another view is that the albumose is produced by some abnormal metabolism taking place in connection with the new growths in the bones. How this could happen is at present a matter of pure conjecture, but it might conceivably take place through the action of a ferment. 3. Finally, it has been suggested recently that the formation of the albumose takes place as the result of the loss of some function of the bone marrow owing to the destruction of the latter.[13] Time will not allow me to review these hypotheses in detail. I will only say with regard to them that the second—namely, that the albumose is actually produced in connection with the new growths—is, in my opinion, that which agrees best with the clinical course and morbid anatomy of the disease.

It is not possible within the limits of a single paper to consider exhaustively any one disease in all its aspects. One must either treat the whole more or less in outline or concentrate one's attention on a few features which may be dealt with in detail. In describing a disease such as myelopathic albumosuria, which few of us have ever encountered, the former method seems to me to be the more appropriate, and I have therefore endeavored to give a general picture of the disease as it has presented itself to me in my practice and my reading, laying special stress on what seem to me to be its more characteristic features, and hinting at the more pressing problems which it presents to the physician and the pathologist.

13. Donetti: Rivista Critica di Clinica Medicina (Florence), Nov. 16, 1901.

TWO CASES OF "RELAPSING" GASTRIC ULCER.*

BY DR. J. HILL ABRAM AND MR. W. THELWALL THOMAS.

The value of surgery in intractable ulcers of the stomach and duodenum is very clearly shown by the following two cases. The tendency to cicatrization in gastric ulcers varies in different cases, but that some heal spontaneously there can be no doubt. According to Einhorn[1], 50 per cent of all cases of gastric ulcers heal completely without any severe complication, but a large proportion require active surgical treatment.

CASE 1. A spinster, aged forty-two years, was sent to Dr. Abram by Mr. R. A. Jones, of Holywell, on December 8, 1900. She had always been delicate. In 1896 she had a bad attack of gastric trouble which lasted for eighteen months, and recurred at short intervals until October, 1900, when severe pain in the stomach and back supervened and was accompanied by vomiting. The vomited material was copious (two pints). On admission to the Liverpool Royal Infirmary she was emaciated, slept badly, and complained of headache, dizziness, and pain in the stomach. The molar teeth were greatly decayed in both upper and lower jaws. The tongue was dry, and there was a constant bitter taste in the mouth. Ingestion of food caused dull, aching pain in the stomach, which persisted until vomiting occurred. The vomited material was copious, smelling strongly of butyric acid. The bowels were very costive. Physical examination of the abdomen revealed marked tenderness in the epigastrium, a dilated stomach extending well below the umbilicus, and an irregular flattish mass in the upper right quadrant of the abdomen. The urine was scanty and alkaline (fixed alkali). With routine treatment the patient improved to such an extent that from December 14th to January 3d there was no vomiting, and, in fact, the patient considered herself well. However, Dr. Abram considered that an operation was advisable, and the patient was transferred to the care of Mr. Thelwall Thomas in January, 1901. On opening the abdomen a mass of adhesions was found in the pyloric region which were covering a duodenal ulcer lying just beyond the pyloric ring and so situated anatomically that excision was impracticable. The surface of the ulcer was scraped and pyloroplasty was

*At the Liverpool Royal Infirmary. Reported in the London Lancet.

1. Quoted by Robson and Moynihan, Diseases of the Stomach and their Surgical Treatment, p. 100.

performed. She made an uninterrupted recovery and had remained free from any gastric symptoms up to the time she was last seen (July, 1902), and there is now no trace of dilatation of the stomach.

Case 2. The patient was a nurse, aged twenty-six years. The first gastric symptom, vomiting, occurred in February, 1899, and was definitely associated with mental shock. Food caused discomfort but not actual pain. After a month's rest no symptoms appeared for seven months. From this time (October, 1899) constipation was marked and slight pain after food was frequent. In March, 1900, Dr. Abram saw her for a severe attack of pain in the epigastrium, with a slight degree of collapse. Mr. Thelwall Thomas saw the case with him, and it was decided that perforation in the general cavity of the peritoneum had not occurred, and that immediate operation was not indicated. On May 8th she left the infirmary practically free from all symptoms, and during a three months' holiday could golf and cycle. After returning to duty she had occasional attacks of colicky pain. In November, 1901, she had a septic throat, and as the temperature fell a severe attack of abdominal pain came on. Dr. Abram was now able to detect a lump in the epigastrium lying to the left of the middle line. Although by careful dieting and attention to the bowels this patient could be kept free from pain, yet she was always in danger of a relapse, and moreover, was off duty nine months in three years—a serious matter to a nurse. Dr. Caton also saw the patient and agreed as to operation. Mr. Thelwall Thomas operated in December, 1901. There was a dense mass of adhesions, covering an ulcer of the stomach. The ulcer lay on the lesser curvature, rather nearer the cardiac than the pyloric end of the stomach. The ulcer and adhesions were excised. The patient made a good recovery from the operation and has remained well up to the time of writing (August, 1902).

Remarks by Dr. Abram. I wish to record these two cases, because I believe physicians will have to consider the question of surgical interference in cases of chronic gastric ulcer, or as they might well be called, "relapsing" gastric ulcer. I should like to emphasize the fact that in both these cases relief was obtained by ordinary treatment, and yet in Case 1 life was becoming a burden, and in Case 2 the repeated relapses were seriously interfering with the patient's training as a nurse. In Case 2 the adhesions were extremely dense, and in fact, Mr. Thomas thought that he had a tumor to deal with. Subsequent microscopical examination by Dr. E. E. Glynn showed, however, simply scar tissue.

Although not tumor, the adhesions were so tough that their removal was most difficult, and it would have been, in my opinion, absolutely hopeless to interfere successfully for an acute perforation. It seems to me, therefore, that surgical intervention should be invoked during a quiescent period. Finally, the term which I have suggested for these cases—viz., "relapsing"—needs a word or two of comment. The cicatrization of a true gastric ulcer is a much rarer thing, in my opinion, than is commonly believed. I have no note of such a condition post-mortem, and the pathologist to the infirmary, Dr. Glynn, has only found one in a hundred cases in which the stomachs were specially treated, and any cicatrix could have been readily detected. Many writers on gastric ulcer hold that the cicatrices are overlooked, hence Dr. Glynn's experience is important. From the history of the above two cases it is obvious that the symptoms may all disappear and yet the ulcer has not cicatrized—it has merely become callous. The cause of relapse is obscure—errors of diet, and so on, account for some cases; but Case 2 is of interest, for in this instance a severe relapse attended, or rather followed, a septic throat, and it may well be that infection has much to do with relapses. This, again, emphasizes the necessity for most rigorous attention to the state of the mouth in all cases of gastric ulcer.

CONSTITUTION AND BY-LAWS FOR COUNTY SOCIETIES.*

INTRODUCTORY.

The Committee on Organization of the American Medical Association, which was continued at the Saratoga meeting, herewith submits a tentative Constitution and By-laws for County Societies, and in doing so desires to say, that while the provisions it contains are deemed essential to good organization, some of the provisions are suggestive and educational in character and may not be applicable to every county or section. In such cases these may be omitted, or others more appropriate substituted for them. In any event the high ideals for the individual physician and the spirit of courtesy and kindness which should govern him in his dealings with his professional neighbors are here set forth for thought and consideration.

The Committee is not a unit as to whether there should be charged an admission fee, as called for in Section 1, Chapter V, of the By-laws, but the

* Prepared by the Committee on Organization of the American Medical Association.

majority of the Committee believes that this is the correct principle, for the average individual does not appreciate that which he gets for nothing, and furthermore, that if an admission fee is charged the individual will not be as likely to drop out of the Society as if he obtained his membership for nothing. The Committee advises, however, that in organizing a County Society, or before adopting the new Constitution, that the charter shall be open for all in the county who are eligible and admit such charter members without the admission fee.

We close this report by making a quotation from our report when we submitted the Constitution and By-laws for State Societies:

"Much in the By-laws submitted may be regarded as 'preaching,' but it is inserted advisedly, with the sole object of arousing in the minds of each medical society member a desire for the accomplishment of greater ends than has been permitted by the customs and forms of the past. The Committee earnestly desires that the State committees will continue the work of perfecting organization, actuated by that love for our profession that its ideals demand. With the medical profession well organized, medical science will more rapidly step to its appointed high place, and the profession which lives in its atmosphere will have that power and respect in the community that is its right."

J. N. McCormack, Bowling Green, Ky.,
P. Maxwell Foshay, Cleveland, Ohio,
George H. Simmons, Chicago, Ill.
Committee.

CONSTITUTION.

Article I.—Name and Title of the Society.

The name and title of this organization shall be the ———— County Medical Society.

Article II.—Purposes of the Society.

The purposes of this Society shall be to bring into one organization the physicians of ——— County, so that by frequent meetings and full and frank interchange of views they may secure such intelligent unity and harmony in every phase of their labor as will elevate and make effective the opinions of the profession in all scientific, legislative, public health, material and social affairs, to the end that the profession may receive that respect and support within its own ranks and from the community to which its honorable history and great achievements entitle it; and with other county societies to form the ———— State Medical Association, and through it, with other State Associations, to form and maintain the American Medical Association.

Article III.—Eligibility.

Every legally registered physician residing and practicing in ———— County, who is of good moral and professional standing and who does not practice or claim to practice sectarian medicine, shall be eligible for membership.

Article IV.—Meetings.

Regular meetings shall be held at such time and place as may be determined by the Society. Special meetings may be called by the president on a written request of five members. Calls for special meetings shall state the object of such meeting, and no business except that stated in the call shall be transacted at such meeting.

Article V.

The officers of this Society shall consist of a President, Vice-President, Secretary, Treasurer, Delegates, and Board of (three) Censors. These officers, except the Delegates and Board of Censors, shall be elected annually for a term of one year. Delegates shall be elected for two years, or in accordance with the constitution and by-laws of the State Association. One member of the Board of Censors shall be elected each year to serve for three years, provided that at the first election after the adoption of this constitution one member of the board shall be elected for one, one for two, and one for three years.

Article VI.—Funds and Expenses.

Funds for meeting the expenses of the Society shall be raised by admission fees, annual dues, special assessments, and voluntary contribution. Funds may be appropriated by vote of the Society for such purposes as will promote its welfare and that of the profession.

Article VII.—Charter.

The Society shall apply to the State Association for a charter at the meeting at which this constitution and by-laws are adopted, or as soon thereafter as practicable, and the charter shall be kept in the custody of the secretary.

Article VIII.—Incorporation.

The Society shall have authority to appoint a Board of Trustees and to provide for articles of incorporation whenever it may deem the same necessary.

Article IX.—Amendments.

The Society may amend any article of this constitution by a two-thirds vote of its members at any regular meeting, provided that such amendment shall have been read in open session at a previous regular meeting and shall have been sent by mail to each member ten days in advance of the meeting at which final action is to be taken.

BY-LAWS.

Chapter I.—Membership.

Section 1. The Society shall judge of the qualification of its members, but, as it is the only door to the State Medical Association and to the American Medical Association for physicians within its jurisdiction, every reputable and legally qualified physician in ———— County, who does not practice or claim to practice sectarian medicine, shall be entitled to membership.

Sec. 2. A candidate for membership shall make application in writing, and shall state his age, his college, and date of graduation, the place in which he has practiced, and the date of registration in this State. The application must be accompanied by the admission fee, $5.00, and must be endorsed by two members of this Society. It shall be referred to the Board of Censors, who shall inquire into the standing of the applicant, assure themselves that he or she is duly registered according to the laws of the State, and report at the next regular meeting of this Society. Election shall be by ballot, and two-thirds of the votes of the members present and voting shall be necessary to elect. The application shall be returned to the secretary, who shall file it for future reference. Applications for membership from rejected candidates shall not be received within six months of such rejection.

Sec. 3. A physician accompanying his application with a transfer card from another component county society of this or any State within sixty days of the issuance of said card may be admitted without fee on a majority vote of the members present, and without the application being referred to the Board of Censors. Such applications may be acted on at the meeting at which they are presented on the vote of three fourths of the members present, otherwise they shall lie over until the next regular meeting. No annual dues for the current year shall be charged against such members, provided the same have been paid to the Society from which the applicant comes.

Sec. 4. A physician residing in an immediately adjoining county may become a member of this Society in like manner and on the same terms as a physician living in this county, on permission of the county society of the county in which the applicant lives, if there be one, or of the State Councilor for this jurisdiction.

SEC. 5. A member in good standing who is free from all indebtedness to this Society, and against whom no charges are pending, wishing to withdraw, shall be granted a transfer card. This card shall state the date the member associated himself with this Society, the date of issuance of the card, and shall be signed by the president and secretary. It shall be accompanied with a copy of the application presented at the time the member joined the Society, for information of the Society to which the member desires to attach himself.

SEC. 6. All members shall be equally privileged to attend all meetings and take part in all proceedings, and shall be eligible to any office or honor within the gift of the Society, so long as they conform to this constitution and by-laws, including the payment of the dues to this Society and to the State Association: Provided, that no member under sentence of expulsion shall take part in any of the proceedings, or be eligible to any office until relieved of such disability. And provided further, that none of the privileges of membership shall be extended to any person not a member of this Society except on a majority vote of the Society in regular meeting.

7. A member who is guilty of a criminal offense or of gross misconduct either as a physician or as a citizen, or who violates any of the provisions of this constitution and by-laws, shall be liable to censure, suspension, or expulsion. Charges against a member must be made in writing and be delivered to the Secretary, who shall immediately furnish a copy to the accused and to the Chairman of the Board of Censors. The Board of Censors shall investigate the charges on their merits, but no action shall be taken by the Board before giving the accused and accusers ample opportunity to be heard. Nor shall any action be taken by the Board within ten days of the presentation of the charges to the accused. The Board shall report (1) that the charges are not sustained; or (2) that the charges are sustained and that the accused be (*a*) censured, (*b*) suspended for a definite time, or (*c*) expelled. Censure or suspension shall require a two-thirds vote of the members present and voting, and a three-fourths vote of those present and voting shall be required to expel a member. No action shall be taken by the Society in such cases until at least six weeks have elapsed since the filing of the charges. A member suspended for a definite time shall be reinstated at the expiration of the time, without action on his part or on the part of the Society.

SEC. 8. Kindly efforts in the interest of peace, conciliation or reformation, so far as possible and expedient, shall precede the filing of formal charges affecting the character or standing of a member, and the accused shall have opportunity to be heard in his own defense in all trials and proceedings of this nature.

SEC. 9. Members expelled from this Society for any cause shall be eligible for membership after one year from date of expulsion and on the same terms and in like manner as original applicants.

Chapter II.—Powers and Duties.

Section 1. This Society shall have general direction of the affairs of the medical profession of the county, and its influence shall be constantly exerted to better the scientific, material, and social condition of every physician within its jurisdiction. Systematic efforts shall be made by each member, and by the Society as a whole, to increase the membership until it embraces every reputable physician in the county.

Sec. 2. A meeting shall be held at —— p. m. on the —— in each month (or oftener). —— members shall constitute a quorum. The officers and committee on program shall profit by experience and by the example of other similar societies, and strive to arrange for the most attractive and successful proceedings for each meeting. Younger members especially shall be encouraged to do post-graduate and original research work and to give this Society the first results of such labors. Crisp papers and discussions and reports of cases shall be arranged for and encouraged, and tedious and profitless proceedings and discussions shall be avoided as far as practicable.

Sec. 3. Agreements and schedules of fees shall not be made by this Society, but at least one meeting during each year shall be set apart for a discussion of the business affairs of the profession of the county, with the view of adopting the best methods for the guidance of all. In all proper ways the public shall be taught that business methods and prompt collections are essential to the equipment of the modern physician and surgeon, and that it suffers even more than the profession when this is not recognized.

Sec. 5. The Society shall endeavor to educate its members to the belief that the physician should be a leader in his community, in character, in learning, in dignified and manly bearing, and in courteous and open treatment of his brother physicians, to the end that the profession may occupy that place in its own and the public estimation to which it is entitled.

Chapter III.—Officers.

Section 1. The officers of the Society shall be elected at the (December) meeting in each year, which shall be known as the annual meeting. Nominations shall be made by informal ballot, and all elections shall be by ballot. The vote of a majority of all the members present shall be necessary to an election.

Sec. 2. The President shall preside at all meetings of the Society, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession in the county during the year, and it shall be his pride and ambition to leave it in better condition as regards both scientific attainments and harmony than at the beginning of his term of office.

Sec. 3. The Vice-President shall assist the President in the performance of his duties, shall preside in his absence and, on his death, resignation, or removal from the county, shall succeed to the presidency.

Sec. 4. The Secretary shall record the minutes of the meetings and receive and care for all records and papers belonging to the Society, including its charter. He shall keep account of and promptly turn over to the treasurer all funds of the Society which may come into his hands. He shall make and keep a correct list of the members of the Society in good standing, noting of each his correct name, address, place and date of graduation, and the date of the certificate entitling him to practice medicine; and in a separate list he shall note the same facts in regard to each legally qualified physician in this county not a member of this Society. It shall be his duty to send a copy of such lists, on blank forms furnished him for that purpose, to the Secretary of the State Association, at such time as may be designated by the State Association. In making such lists he shall endeavor to account for each physician who has moved into or out of the county during the year, stating, when possible, both his present and past address. At the same time and with his report of such lists of members and physicians, he shall transmit to the State Association his order on the Treasurer for the annual dues of the Society.

Sec. 5. The Treasurer shall receive all dues and money belonging to the Society from the hands of the secretary or members, and shall pay out the same only on the written order of the secretary.

Sec. 6. The Delegates shall attend and faithfully represent the members of this Society and the profession of this county in the House of Delegates of the State Association, and shall make a report of the proceedings of that body to this Society at the earliest opportunity.

Chapter IV.—Committees.

Section 1. There shall be a Board of Censors as provided in the constitution, a standing Committee on Programs and Scientific Work, a Committee on Public Health and Legislation and such special committees as may from time to time be deemed necessary.

Sec. 2. *Board of Censors.* This Board, consisting of three members, one elected annually, shall examine and report on the qualification of applicants for membership, subjecting each applicant to such examination as it may deem necessary. It shall investigate charges preferred against a member and report its conclusions and recommendations to the Society. In case of the absence of a member of the Board, the president may appoint some member to fill the vacancy. The senior member of the Board in point of service shall be chairman of the Board.

Sec. 3. *Committee on Program and Scientific Work.* This Committee shall consist of the president, vice-president, and secretary. It shall be its duty to promote the scientific and social functions of the Society by arranging attractive programs for each meeting and by urging each member to take part in the scientific work. It shall stimulate fraternalism and good feeling among the members in every way possible. (Provision should be

made in this Section for luncheons, dinners, etc., which the Committee believes to be an excellent way to bring members together. Such occasions should be made as inexpensive as possible.)

SEC. 4. *Committee on Public Health and Legislation.* This Committee shall consist of three members who shall be appointed annually by the president. It shall be its duty to enforce and support the sanitary and medical laws of the State in this county, to coöperate with the Legislative Committee of the State Association in all matters pertaining to legislation, and to prosecute quacks and medical pretenders in this county.

CHAPTER V.—FUNDS AND EXPENSES.

SECTION 1. The admission fee, which must accompany the application, shall be $5.00, and shall include the annual dues for the fiscal year, provided that when more than one half of the fiscal year has elapsed at the time of election of a member, one half of the annual dues shall be remitted, making the admission fee in such cases $4.00. The admission fee shall be returned if the applicant is not accepted.

SEC. 2. The annual dues shall be $2.00, and shall be payable on January 1st of each year. Any member who shall fail to pay his annual dues by April 1st shall be held as suspended without action on the part of the Society. A member suspended for non-payment of dues shall be restored to full membership on payment of all indebtedness. Members more than one year in arrears shall be dropped from the roll of members.

SEC. 3. The fiscal year of this Society shall be from January to December, inclusive.

CHAPTER VI.—ORDER OF BUSINESS.

The order of business shall be as follows:

1. Call to order by the President.
2. Reading of minutes of last meeting.
3. Clinical cases.
4. Papers and discussions.
5. Unfinished business.
6. Miscellaneous business.
7. Announcements.
8. Adjournment.

CHAPTER VII.—RULES OF ORDER.

The deliberations of this Society shall be governed by parliamentary usage as contained in Robert's Rules of Order, unless otherwise determined by vote.

CHAPTER VIII.—CODE OF ETHICS.

The Code of Ethics of the American Medical Association shall be the Code of this Society.

CHAPTER IX.—AMENDMENTS.

These by-laws may be amended at any regular meeting by a two-thirds vote therefor, provided that such amendment has been read in open session at the preceding regular meeting, and a copy of the same has been sent to each member by the Secretary ten days in advance of the meeting at which final action is to be taken.

Reports of Societies.

LOUISVILLE CLINICAL SOCIETY.*

Mortality Statistics. Dr. M. K. Allen, health officer of Louisville, made a report, showing some of the most active causes of death during the month of January, 1903; scarlet fever, twenty cases, one death; diphtheria, sixty-five cases, three deaths, which was quite a reduction from the death-rate of a year ago. This great lowering of the death-rate was due to the more liberal use of antitoxin. At the outset very little of it was used, and in the early days it was often not recognized, and no antitoxin was then heard of. Now it is used in nearly all cases, and if the physician does not suggest it the family will. There were twelve deaths from typhoid fever; smallpox, one death.

Dr. G. B. Young: I have had five cases of typhoid fever within the last five or six weeks, all but two of which were reported. All the cases I have had lately have been characterized by continuous high temperature but no other symptoms. They did not seem to be sick at all. None of them has been severe.

Dr. M. K. Allen reported two cases of insanity following an attack of smallpox. He thought that possibly the dread of the disease and the great mental agitation consequent with the attack might have brought about the insanity.

Dr. G. B. Young: A case of smallpox I have recently seen applied for relief because of having had a violent attack of colic. There were no other symptoms. He was given a hypodermic and got easy, but had another attack at the hospital. It looked like appendicitis, but the next

* Stenographically reported for this journal by Edgar Allen Forbes.

morning his temperature was still normal, but his throat was sore. On examination the typical smallpox eruption was seen, about twelve or fifteen spots all over the soft palate and tonsils. I turned him over to Dr. Allen, and in a day or two he broke out on the face and elsewhere. He merely had these pains and no other symptoms.

The essay of the evening, "Carcinoma in Women," was read by John R. Wathen, M. D. [See page 41.]

Discussion. Dr. M. F. Coomes: This subject of cancer is an interesting one to all of us. Coming on down through the histology and assuming that the diagnosis has been positively made, if I had cancer and there was any possibility of being operated on early enough, I should insist upon a clean, free removal with the knife. In cancer of the womb the proper thing to do is to clean out everything. Do not wait until the cervix has broken down and everything infected. The woman has nothing to lose except the doubtful pleasure of having a baby. In the second place, after the knife has done what can be done, give the patient the benefit of the X-rays. Much is to be hoped for in staying its progress and return by the Röentgen rays. One of the most important cures reported in the literature is that of a case of malignant sore of the larynx by Dr. Schepperingill in New Orleans. That is the most difficult of all forms to treat that we have to contend with. The doctor had gotten enough of the tissue to be sure it was malignant, and the application of the X-rays was made to the outside of the neck, that is, through the skin and sub-tissues. It has been several months now since it was relieved, and there is no recurrence. If a growth of the larynx can be relieved, I do not see why the entire removal of the womb and other structures, with use of the Röentgen rays, would not be advisable. We certainly have in the X-ray at last a means of mitigating this horrible disease. I am a firm believer in early operation for cancer. We have everything to gain and nothing to lose.

Dr. T. P. Satterwhite: I have only to say that I have been very much interested in the treatment by the X-rays, as I have read of it in the journals and heard cases reported. As to what the result will finally be, I can not say. We all look with expectancy in the hope that some good may come of it. I see now that the doctors in New York combine the X-ray treatment with the other methods.

Dr. M. K. Allen: I think the essayist said possibly all that could be said on the subject. It is very unfortunate at this day that we do not know any more about cancer than we do. I think most of the failures are due to the fact that diagnosis has not been made early enough for surgical interference to do much good. I hope such young men as Dr. John Wathen will during this century find something very much better than anything we now have. I look for a great deal from the X-ray treatment, which is yet in its infancy.

Dr. W. H. Wathen: Of course, if it is possible to discover the cause of cancer in any or all parts of the body, this is the most important result that can be obtained to enable us to arrive at surgical measures for its relief. We see that some one is going to give a great amount of money for the establishment of an institution for investigating the causation of tuberculosis, and we may reasonably expect that some one will give a large amount for the investigation of such causes of diseases as cancer, and the time may come in the near future when we may know accurately what is really the cause of cancer. Now, we know that cancer, as it is, is not in many instances successfully cured by surgical interference, and it may be that when we have discovered the cause of cancer we may be equally powerless with surgical means to cure the disease. Then we will have accomplished but little. But let us hope that if we succeed in learning the cause, we may likewise succeed in discovering some antitoxin that will counteract the cause of cancer, just as we seem to be satisfied it does in diphtheria. Then we will have accomplished something to protect mankind against this terrible scourge. As the matter stands, we must face the facts as presented, and no one knows better the unsatisfactory results of treatment of cancer than the surgeon who constantly does this work. The one thing in my work that has exceeded in number any other disease is cancer of the uterus. If there is anything more unsatisfactory in its results, I do not remember. You can not tell in what cases your results will be good and in what cases they will be bad. You may feel that your operation has been thorough, all the diseased tissue removed, and that your patient will make a speedy recovery. You are greatly surprised in a few months to see the disease rapidly spreading in the region from which you removed it. Again, you may have a patient where the disease has progressed very far, and you operate and find that it does not return. I operated seven years ago upon a lady in Louisville for an epithelioma

as large as a turkey's egg. She had lost thirty-five pounds, and had the cachexia. The microscope confirmed the diagnosis, and I advised against operation and only operated because her people insisted. That woman has had no return, and is in better health to-day than she has ever been since womanhood. That was merely one instance.

What are we to do? We are to urge upon the people and to teach the people and the doctors to examine carefully into the history of every case, to make a physical examination wherever there is any indication of cancer of the womb, so that we may get them in time.

As to the X-ray in cancer of the womb, so far as present observation and experimentation has gone, its value is uncertain. The case of improvement in the larynx is no evidence that it will likewise have the same effect in cancer of the uterus.

Dr. Carl Weidner: Our friend has given us something for thought, and when he read the title of his paper I did not know what he would tell us. I do not see that his paper applies to women any more than to men, except in regard to the uterus. In the case of superficial tumors we must rely not only upon the appearance, field, amount of pain, effect on the system and so on, but above all upon the microscopic examination. In the case of cancer of the breast or vagina we can make the diagnosis very thorough. In the uterus specimens are easily removed. Some parties simply take a curette and scrape off a few blood-clots and expect a diagnosis from that. We ought to cut out a sufficient part of the tissues, for we do know that without this it is impossible to make the diagnosis certain.

The doctor has given us a very beautiful survey of the etiology and history of the disease, and there is nothing to add. I am always reminded of a remark of one of my old teachers: "We have here a fight between the epithelial element and the connective-tissue element." The connective tissue weakens and the epithelial gains in the fight.

It remains to be seen whether the cause of the disease is vegetable or animal. Laboratories are being established all over the country for this purpose. There is one in Buffalo and others elsewhere. Several men have sacrificed their lives in making experiments. The experiment of Leopold's is a curious thing, that cancer and sarcoma are interchangeable, one taking the place of the other. That would possibly point to the fact that there is a common etiological factor for both diseases and possibly a special disposition of the tissues may

decide whether we are going to have a sarcoma or a carcinoma developed. It rather looks in favor of a common infecting medium.

As to the time of recurrence, I read the other day that the old law of Billroth must be abolished. I have heard it stated in this Society that three years without recurrence means a cure. But we can not afford to be too sure at the end of that time.

As to the treatment, I have nothing to say. I can speak only from theoretical grounds. When I first heard of this X-ray treatment, I thought again that it had gone too far and that it was unwise to expect everything from one thing. We must be more skeptical. I see no reason to argue against operating thoroughly and then using the X-ray, which is the general view now. The histological cause so far as made seems to show that we have a degeneration of the tissues, something like an endo-arteritis, lessening its volume, which may lead to a secondary degeneration of the tissues.

Reports of Cases.

Laparotomy. Dr. W. H. Wathen: Before I begin to report this case, I will pass around these photographs, taken by Dr. John R. Wathen, showing two lines of vertical and two of transverse tissue. On yesterday afternoon I operated at St. Anthony's Hospital upon a lady who had been operated on six times previously, all of them being laparotomies. She was suffering more at the seventh operation than at any previous time. I discovered two longitudinal scars about half an inch apart and about five inches in length, with a large round scar above the symphysis pubes where a tube had been used for drainage, with two scars running upon the left side, about three or four inches long, and an immense number of scars from sutures. She had an extensive hernial protrusion when she stood erect, with constant pain, and was incapacitated for work. I knew this case was one of extensive adhesions and possibly of intestinal adhesions.

Opening the abdomen, I cut beyond each of the longitudinal scars so as to leave a central wound without any cicatrical tissue. I removed all the cicatrical tissue at the base of the scar caused by the drainage-tube and all the tissue except that leading out from the two transverse scars. When the tissue was removed down to the fascia (the piece that I now exhibit, showing the scars), the fascia was opened and the

omentum found adherent to every part under the womb and upon the cervix, probably six or seven inches in diameter. It was very firmly adherent. This was all separated, and the intestinal adhesions separated. The omentum was ligated about an inch and a half above the transverse colon by No. 2 sterilized catgut and removed. The wound in the abdomen was then closed by interrupted silkworm sutures through the tissues, taking deep hold on the fascia. These cases are sometimes closed by buried sutures, and sometimes that is better because it brings the parts into better apposition. In this case interrupted sutures would give better results. Sometimes we suture with catgut where the tissues are healthy and unite the fascia either by catgut or silver wire, then close the wound. I have done this operation by the different methods, but in most of these cases we get better results by going deep with the sutures. I did not dissect up either of the recti muscles, because I believe that whenever we open the sheath of a muscle and try to bring the longitudinal surfaces together we do injury and not good. So then, if you include muscle tissue, include it in its fascia, as I did in this case. Why did I remove this omentum? It is now not half as large as when I removed it. I did so for two reasons. One, the greater mass of fat you have in the abdomen, the greater the tendency to produce hernia. Again, because this was adherent to all the tissues everywhere and would become again adherent to the raw surfaces of the abdominal wall, and the woman would have again suffered from the pain of omental adhesions. Now she will make a recovery and will have no further trouble with the hernia.

Urethro-Vaginal Fistula. In this connection I want to call attention to another operation. I forgot to bring the specimen, but it is another case where failure resulted from neglect, as in the former case. About twelve days ago I operated upon a woman with a urethro-vaginal fistula, which had been operated on about six or eight months before by one of our best surgeons. It is one of the most inaccessible of all operations at the urethro-vaginal junction and one of the most difficult, on account of the trouble in bringing the tissues into apposition and the contraction of the internal neck of the urethra. In the previous operation the surgeon had introduced his sutures transversely instead of longitudinally and had closed it longitudinally. I introduced the sutures in a longitudinal direction, and the vesico-vaginal wall fell

down easily to the urethra, and I had no trouble and no leakage. This is a little point, but it is a very important matter to the woman. She would just as soon have cancer as a vesico-vaginal fistula. These operations are very easily done if you understand the technique and remember in operating that you must bring the tissues together in the direction that will enable it to fall together with ease, without any tension. If you do that, every one of them will recover.

Dr. John R. Wathen: I think the doctor has left out one important point in reporting this case, that of testing the bladder after finishing the operation by using a strong solution of methylene blue. The bladder is distended with this solution, and then notice whether there is any leak in the incision. If so, the methylene blue will come through the leaking point. This test was used in this case, and there was no leakage.

In regard to adhesions, it is a very peculiar thing, and the profession seems undecided as to what causes these adhesions and when they are absorbed. I operated at the City Hospital this afternoon to suspend the bladder anteriorly. The woman had been operated on a year previously. I expected to find this bladder bound down by adhesions, but to my surprise when I opened the abdomen I did not find a single adhesion. The opening where the cervix had been removed had closed and the very large bladder was freely movable in every direction, in fact too movable. There was no trouble in bringing the bladder up and anchoring it to the peritoneum anteriorly. We would all suppose that after a vaginal hysterectomy with the tissues undergoing necrosis we would have at least one or two adhesions, but there was not one.

Biniodide of Mercury in Hemorrhage from the Bowels. Dr. P. F. Barbour: I have a little case to report. Two years ago a young girl came to me from over the river whose mother told me that she had been passing blood from the bowels for about nine years. The girl was about eleven years old. That meant that practically since infancy she had been passing blood every few days. I believe I will have to discredit the mother's statement, for I do not believe the child could have lived. I report the case because of the plan of treatment, which was very successful. I used biniodide of mercury in small doses every two or three hours until it acted on the liver and bowels. In about ten days the blood entirely disappeared and has never returned

since. I have to say that I did not make a digital examination of the rectum. I simply gave the mercury on general principles, and it relieved her. I have been using biniodide of mercury for a number of years in the treatment of all conditions of the bowels where there is hemorrhage with diarrhea, and I report it because I have gotten such excellent results.

There was a good deal of mucus in the stools; not much straining; no dysentery. I do not believe the girl suffered this way for nine years. I have used biniodide of mercury for a long time for chronic and acute dysentery.

Dr. G. B. Young: There is a great deal of this chronic flux in the region where I was brought up, and some of the most successful practitioners rely almost entirely upon calomel. Of course, whether these are cases of true dysentery or not it is impossible to say. I should imagine the biniodide acted in this case just as calomel does. So far as the length of time the dysentery may continue is concerned, that is pretty indefinite. In Louisiana many years ago my father, aged seventy-five years, used to have spells of six or eight passages a day and never six months went by that he did not have one of these attacks, lasting perhaps six months at a time. When he was seventy-three years of age he had typhoid-pneumonia, but recovered and finally died from dysentery.

Dr. T. P. Satterwhite: In all these cases I think the hyperemia is situated low down; if high up it would affect nutrition and cause more manifestations. These cases low down will not affect the nutrition of the patients, and they may run on for some time.

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DOCTOR LORENZ.

Dr. Lorenz has been unfavorably criticised by some of our journalistic brethren for his newspaper advertising, and for many other things too numerous to mention. We do not believe that Dr. Lorenz was to blame for the notoriety which the lay press gave him. We all know how eager our brothers of the lay press are to secure an item or to make a "scoop," and further we know how difficult it is at times to induce them to refrain from publishing what seems to them "a bit of news" that the lay people would enjoy.

No one who has taken the trouble to inquire into the actions of Dr. Lorenz while in this country will for one instant condemn his course. He was not familiar with American mannerisms, and paid little or no attention to anything but his professional work. He is an earnest and honest worker in his chosen branch of surgery, and he is as skillful as he is earnest and honest. It might be expected that a few of the "would be's" and "I am's" would raise a howl—they had to do that. But all of the howlers in Christendom can not down a big-hearted, whole-souled man like Dr. Lorenz. So far as the medical profession is concerned he has taught us a valuable lesson, to say nothing of the pain and misery that he has banished from the lives

of so many helpless little ones, and the joy and happiness that he has surrounded them with.

We will gladly welcome him to our shores again, and all other such.

ORGANIZATION OF COUNTY MEDICAL SOCIETIES.

In this issue we publish the rules and regulations for the organization and the government of county medical societies. We trust that these rules will be read with care, as they fully explain everything that is to be known about the regulation of county societies under the new organization. Nothing is more important to the doctor who has any interest in his profession than the county medical society. It is the stepping-stone to the State and national society, and therefore is of the utmost importance. It is difficult to understand why so many members of our profession are so tardy about the work of local medical societies, as they are the very essence of all that is beneficial to the profession.

SMALLPOX is on the decrease in Kentucky and Indiana. It is to be hoped that the good work of exterminating this disease will continue, so that by next winter we will be free from it.

Current Surgical and Medical Selections.

THE ENTRANCE OF AIR INTO THE VEINS.—(By H. A. Hare, M. D., Professor of Therapeutics in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Hospital.) I have read with a good deal of interest a paper upon this subject contributed by Dr. Malcolm Goodridge, of New York, to the American Journal of the Medical Sciences for September, 1902. So far as I am aware, the most exhaustive experimental work which has been done in connection with this subject is that of Dr. Nicholas Senn, which was published in the Transactions of the American Surgical Association for 1885, and my own work, reported in the Therapeutic Gazette for 1889, page 606. Dr. Senn's experiments involved the use of different kinds of animals, but my own were confined almost entirely to dogs, and were made in ignorance of the very valuable research which had previously been carried out by Dr. Senn.

Having been taught as a student of medicine that the entrance of air into a vein, even in a minute amount, was followed by most disastrous

results during surgical operations—having been warned that should such an occurrence take place while giving an hypodermic injection death might ensue—I was struck with the fact that when intravenous injections of various substances were given to some of the lower animals, and considerable quantities of air entered a vein, no appreciable results took place even if the jugular vein received the air. After these observations on my part had been confirmed by a large number of experiments in which the injection of air took place inadvertently, I carried out quite an exhaustive study in which I deliberately injected air into the jugular vein of dogs for the purpose of seeing how large quantities could be borne without producing death, and demonstrated the innocuousness of these injections to medical students of the University of Pennsylvania, where I was then teaching, to several of my colleagues, and finally before the Philadelphia County Medical Society, on that occasion injecting as much as sixty cubic centimeters of air into the jugular vein of a small dog that weighed about twelve pounds, without the production of any symptoms whatever. I mention these preliminary facts as they have some bearing upon the remarks which are to follow, which remarks, to a certain extent, take issue with those of Dr. Goodridge, both as to his quotations from Dr. Senn and from myself, and as to the conclusions which he draws from his own experiments.

In the early part of Dr. Goodridge's paper he states that the researches of Dr. Senn and myself impress him with the fact that the personal equation of an investigator plays no insignificant part; for, "on the one hand, Hare, after experimenting with some seventy dogs, asserts that even large quantities of air do little harm; . . . on the other hand, Senn found that small quantities of air when injected into the jugular vein proved fatal in a large percentage of his dogs." As a matter of fact, this statement in regard to Senn's results is incorrect, as will be seen when page 72 of Dr. Senn's brochure on this subject is examined, where, in his remarks on his experiments, he states that a small amount of air in the right side of the heart in a healthy animal gives rise only to temporary symptoms referable to the heart's action and the pulmonary circulation; and, again, when he states, a few lines below, "that the danger attending the insufflation of air into the veins is proportionate to the amount of air introduced as well as the capacity of the right ventricle to resist intracardiac pressure." It is interesting in this connection, although not directly in point at this time, to remark that Dr. Senn found it practically impossible in all his experiments to cause the entrance of air into a vein of the neck or into the longitudinal sinus unless he employed a syringe for the purpose of injecting it.

At the close of Goodridge's paper he concludes that the entrance of air into the veins even in small amounts is to be dreaded, as it results in death. Whether this conclusion is correct as it relates to man is doubtful. As is well known, there are a number of cases on record in which air embolism is supposed to have been responsible for death in the human being,

although, as far as I know, the possibility of ordinary embolism having produced death in these cases has not been excluded. There are other cases of air embolism in man which were not disastrous.

The point is that Dr. Goodridge is not justified in making the assertion quoted, nor do his experiments justify him in the still more radical assertion that he believes the statement that large quantities of air may be introduced into the veins without unfavorable results to be "pernicious teaching, and not supported by fact." The results of my work and that of Senn seem to prove that air embolism in small amounts is not usually lethal, while Goodridge's own experiments support our earlier researches instead of controverting them.

When we come to examine the experiments upon which Dr. Goodridge has based his conclusions, we find that a serious error has occurred as to the amounts of air which he has injected. Surely a wounded vein would not be apt to draw in very large quantities of air, even if the patient was struggling violently, and the experiments of Senn and myself certainly prove that small amounts of air introduced into the veins of animals practically never result fatally; while if any further proof of the fact that air may enter a vein without producing death is required, I may state that I have in my own experience seen a considerable quantity of air—amounting to as much as from two to three cubic centimeters—injected into the median basilic vein of two human beings without producing any symptoms whatever; while a third patient, who received a similar dose, shortly afterward had a decided rigor, which at the time was supposed to be due to the fact that the saline solution was unduly cold, and not to the air embolus which entered inadvertently. It is a noteworthy fact that in all Dr. Goodridge's experiments enormous quantities of air were injected into the veins, and, furthermore, that this injection was completed within a very few moments. Thus in one dog, weighing forty pounds, seventy-five cubic centimeters was injected into the femoral vein, which would be equivalent to the injection of three hundred cubic centimeters in a man of one hundred and sixty pounds —an amount which could scarcely enter a wounded vein during an operation by any possibility unless it was deliberately forced into it. So, too, in his Experiment No. 10, notwithstanding the fact that seventy-five cubic centimeters was injected into a dog weighing thirty-four and one half pounds, recovery took place, so that five days later the animal was recorded as being perfectly well, and on the sixth day was again subjected to an injection of seventy-five cubic centimeters, with the result that the dog "died." It is a noteworthy fact, however, that in Dr. Goodridge's report of this experiment he states that when the thorax was opened, after the supposed death of the dog, the auricles were spasmodically contracting, the right ventricle was distended with air, the heart was fibrillating, and that this continued for fifteen minutes. It would seem possible, therefore, that had the "autopsy" not been performed so soon the dog might have survived even the second injection, since other dogs that did not come to

immediate "autopsy" recovered. In his thirteenth experiment the animal received altogether two hundred cubic centimetres of air, in injections varying from fifty to seventy-five cubic centimeters each; and although the animal was apparently dead, it eventually recovered and was killed with chloroform. This animal received an amount of air in twenty-four minutes which is equivalent, in a man weighing two hundred pounds, to a litre, or about one quart; while in Experiment 15, three hundred cubic centimeters given to a dog weighing less than forty pounds did not produce death, and it required a total of four hundred cubic centimeters to produce this result. The equivalent to this injection in a man of one hundred and sixty pounds would be about three pints of air.

It is not necessary to quote further experiments which illustrate the fact that the doses of air which were employed by Dr. Goodridge were so massive that their effects can not be compared with those which are produced by those minute quantities of air which might, perchance, be drawn into a vein. It is also a noteworthy point that not only did some of Dr. Goodridge's dogs survive these enormous injections, but in several instances he states that they recovered so rapidly that subsequent experiments were made upon the same animals. According to his own summary of his results, nine dogs recovered after aspiration of their hearts, while two others, which finally recovered, required large quantities of air—"two hundred and fifty to four hundred cubic centimetres"—to be injected forcibly before the pulse disappeared temporarily.

Dr. Goodridge also states that rapid injection of air is an important factor in producing bad results, and that considerable quantities of air may be slowly injected without any serious effect.

I do not doubt that such a quantity of air as eight hundred cubic centimeters, or nearly a quart, would produce a disastrous effect if it found entrance to the jugular vein of a man, and I do not deny that much smaller amounts may cause alarming symptoms, or even death. My claim is—and it is supported by the exhaustive experiments of Senn and myself, my personal experience with air embolism in man, and by Goodridge's own observations—that even a large air embolus is not as fatal as a small air embolus has been thought to be, and that the danger of the occurrence of air embolism is very slight. As was proved by Senn's researches, it is useless to conclude from massive injections in dogs that small ones in man are deadly.

Finally, it is not to be forgotten that in all probability different resistance to air embolism exists in different animals. Rabbits and monkeys are very susceptible, whereas dogs and goats are extraordinarily immune.—*The American Journal of the Medical Sciences.*

Recurrent Vomiting.—Two cases are reported by Larned in children, and the subject generally, with its literature, is discussed. He believes that it is too little recognized and is more common than generally supposed.

The diagnosis is not difficult if one recognizes the existence of such a disease. The theories of its origin are noticed; those of irritation, of a neurosis of toxic origin and Rachford's view that it is due to the presence of certain xanthin substances in the body. His observations have led him to believe that the condition is certainly due to some toxic substance, the nature and origin of which is yet obscure. The differential points between acute meningitis, tuberculous meningitis, intestinal obstruction, acute indigestion, and nephritis are reviewed. The lack of previous history of middle-ear disease and of prodromal symptoms lead him to exclude meningitis and the lack of abdominal pain, etc., intestinal obstruction. The character of the vomiting will also distinguish the disease from intestinal obstruction. Acute indigestion has its characteristic symptoms, the vomiting showing undigested food, the tendency to diarrhea, and relief of the attacks by vomiting, while examination of the urine will serve to exclude nephritis. The mortality was considered slight until Marcy published his two fatal cases. Up to the present time nothing has been found that will cut short an attack, though certain measures will alleviate it. All food and drugs by the mouth should be stopped and medication and feeding be entirely by the skin and rectum. In the majority of cases it is not necessary to resort to hypodermic medication, as the thirst seems fairly well controlled by the retained injections of salt solution. Tincture of opium given in this way is about as effective as morphine hypodermically and the urine seems favorably affected by this method. Flushing out the lower bowel once daily with a copious high injection of normal salt solution seems to be of some benefit. With the subsidence of vomiting a calomel purge is indicated. Between the attacks the child should lead an outdoor life, avoid overfatigue or excitement and have the bowels carefully regulated, and should drink a good deal of water.—*Journal American Medical Association.*

Special Notices.

"In Medicina Qualitas Prima Est."—All the preparations of Wm. R. Warner & Co. are known for excellence of quality, accuracy, and uniformity of composition. The effervescent lithia water tablets furnished by this firm offer us a ready and effective method of introducing lithia into the system for the relief of the many disorders in which that remedy is of conspicuous service. The tablets are made in two strengths, one containing 3 and the other 5 grains.

Lithia water tablets promote the activity of the kidneys, increase the elimination of urea, and convert uric acid into a soluble form. These properties are an indication of their value in practical medicine. Their chief applicability is in gout and lithemic conditions. By their instrumentality in conveying deleterious products harmlessly from the system they prevent its accumulation and, consequently, the damage which its constant presence inflicts. The pernicious influence of the products of imperfect metabolism upon

the kidneys, heart, and blood-vessels is averted or minimized. The aggregation of insoluble and gritty particles in the form of gravel or stone is prevented by the continued use of these tablets. They will, therefore, often be efficient in saving the kidneys from disorganization and the patient from the agonies produced by the passage of a calculus. By an analogous action they obviate the formation of stone in the bladder and alleviate inflammation of that organ. These tablets are, moreover, of much service in rheumatic conditions, both articular and muscular. In the subjects of gout and rheumatism they improve digestive power, and therefore tend to remove some of the causes of the various forms of mischief which those conditions are capable of producing throughout the body.

Warner's effervescent lithia water tablets are likewise useful in Bright's disease, acting as a diuretic and reducing albuminuria. In this manner they prevent the accumulation of toxic products. It must be recognized, from such considerations, briefly presented, that they possess a wide sphere of usefulness.—*Monthly Cyclopedia of Practical Medicine.*

Coca in Nervous Overwork.—Midst those of the mighty, who are free to go and come at will—or among those of the more mighty class who must go because their neighbors can—there are exacting strains incidental to the summer flitting that often are not manifest until nervous tension is relaxed, when the subject is presumably settled for rest and repair. The hoped for recuperation does not come, for the rush and bustle of travel has left a system nervously depressed from fatigue, and impressionable to the unhygienic conditions often manifest during the heated term. The practitioner who is called to aid such nerveless patients is often at his wits' end for a remedy that shall be agreeable and speedily effective. Such a system does not require an artificial stimulus of drugging, but some aid to repair. This repair is impossible where the human machine is clogged with the products of tissue waste. Of all known substances to promote a conversion of this waste there is none equal to Coca, which may rightly be termed a panacea for the ills of overtired humanity.

It is now nearly half a century since Angelo Mariani, a pharmaceutical chemist of Paris, France, cleverly blended the properties of the marvelous Coca leaves with a nutrient wine. This was prompted through the phenomenal action of Coca upon the Andean Indian, who is supported by its use through the most arduous trials to which mankind can be subjected. Long after this early adaption the potent quality of the several alkaloids of Coca were made known to the physiologist, proving the wisdom of this selection, and Vin Mariani is accepted throughout the world by conservative physicians as a worthy tonic-stimulant, the merit of which has been confirmed through the severe tests of time.

Excessive Proteid Diet.—It doesn't require much of an argument to show that good material must go into the twenty-story building if it is to be solid and secure.

Yet a great many people seem to think that it matters little what kind of material goes into the building of the human structure!

They offer the body thistles and ask it to give back figs.

They feed on thorns and expect to pick roses.

Later, they find they have sown indigestion and are reaping ptomaines.

It's a wonderful laboratory, this human body. But it can't prevent the formation of deadly poisons within its very being.

Indeed, the alimentary tract may be regarded as one great laboratory for the manufacture of dangerous substances. "Biliousness" is a forcible illustration of the formation and the absorption of poisons, due largely to an excessive proteid diet. The nervous symptoms of the dyspeptic are often but the physiological demonstrations of putrefactive alkaloids.

Appreciating the importance of the command, "Keep the Bowels Open," The Antikamnia Chemical Company offers Laxative Antikamnia & Quinine Tablets, the laxa-

tive dose of which is one or two tablets every two or three hours, as indicated. When a cathartic is desired, administer the Laxative Antikamnia & Quinine Tablets as directed and follow with a saline draught the next morning, before breakfast. This will hasten peristaltic action and assist in removing, at once, the accumulated fecal matter.

"The Documents in the Case."—We hope that every physician who receives the somewhat graphic description of the case of Mrs. S——, and notices the marked and rapid improvement in her condition as evidenced by the differential blood counts, may apply to the Palisade Manufacturing Company for information in regard to the treatment which proved so distinctly successful in this marked case of chloro-anemia. Those who have not as yet received this unique portfolio of legal-looking documents should apply for a copy at once, before the supply is exhausted.

"It is necessary to prevent as far as possible the great coagulating effect that the lab-ferment of the infant's gastric juice has upon the casein of cow's milk; and this is satisfactorily accomplished either by adding an alkali, such as limewater, or some mucilaginous material, such as barley water or Mellin's Food. In this way the casein curd is rendered loose and flocculent, and more like that of human milk."—*Diseases of Infancy*, J. W. Ballantyne, M. D.

As a remedy in diseases of the mucous surfaces, S. H. Kennedy's Extract of Pinus Canadensis has successfully passed through the crucial test of practical experience. Recent observers have given it a place far in advance of that class of mineral astringents which have hitherto held a front rank in the treatment of mucous discharges, "especially vaginal and urethral," sores, ulcers, piles, sore throat, nasal catarrh, dysentery, diarrhea, and hemorrhages. While not altogether a new remedy, medical text-books have nevertheless thus far considered it in a very brief and cursory manner, and the great favor it now enjoys among those who have used it has not yet extended, we believe, throughout the medical profession in its entireness. A knowledge of its merits should be, therefore, more thoroughly disseminated, since an intimate acquaintance with its virtues means an improved method of treatment of diseases heretofore particularly obstinate and intractable.

THE

AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

MANAGEMENT OF NORMAL CASES OF LABOR.*

BY J. J. ADAMS, M. D.

The questions involved in the management of a woman in labor will confront every practitioner of medicine, and his ability will be put to proof before his medical career has extended very far, and to a beginner there is much that is trying and embarrassing, especially when his every movement and action is watched and criticized (and I must say, sometimes justly) by the old mother midwife.

It is well to recollect also that nature alone usually terminates labor with safety to both mother and child, but at the same time it should not be forgotten that at any moment dangerous complications may arise which should be immediately recognized and promptly dealt with; on this account it is very necessary for the obstetrician to have a thorough knowledge of all dangerous complications.

Having been called to a case of labor, the first question is, what shall I take with me? A fairly well-equipped obstetrician should have in his obstetric bag scissors, needles, suture material, needle-holder, hemostats, one box sterilized gauze, package of borated cotton, a bottle of carbolized vaseline, a bottle of aseptic silk ligature for cord, hypodermic syringe, with the customary pellets, a bottle of fluid extract ergot, an obstetric forceps, a box of hermetically sealed tubes of aseptic ergot for hypodermic use, chloroform, fountain syringe, box of talcum powder, bottle of ethereal antiseptic soap, and a nail-

* Read before the Muldraugh Hill Medical Society, December 11, 1902.

brush. Before making an examination the physician should always thoroughly wash his hands with soap and water and then with an antiseptic solution, and before introducing the examining fingers should lubricate them with carbolized vaseline.

The diagnosis of labor is the first question that confronts the physician when first called to visit his patient, and some very unfortunate mistakes have been made in diagnosis.

Dr. Barton Cook Hirst, of Philadelphia, Pa., cites a case. One of his students, having been called hurriedly to see a patient, spent some fifteen minutes sterilizing his hands, and made a prolonged vaginal examination, much to the patient's surprise, as she had sent for him on account of rheumatism.

An instance occurred in our county in which one of our best physicians made a diagnosis of ovarian tumor and advised an operation, but after consultation decided to await further developments, and after a short time I delivered the woman of twins.

The signs of labor are pains in the sacral region or abdomen, recurring at intervals of from five minutes to a half hour, which come on suddenly and last for about a minute; sometimes we have a little blood-tinged mucus escaping from the vagina, but the most reliable sign is the dilation of the os, and when the pain comes on you feel with the examining finger the pressure downward, and membranes and os made tense.

Having made a diagnosis of beginning labor, the presentation and position of the child must be made out by vaginal touch, auscultation, and palpation. We make the diagnosis of presentation by dividing the uterus into four equal parts by an imaginary line corresponding to the median line and a transverse line which passes through the middle of the uterus, and may or may not pass through the umbilicus, as its position varies in different individuals.

In vertex presentations the maximum intensity of the fetal heart-sounds are heard below the transverse line and to the right or left of the perpendicular line.

Face presentation: On the transverse line and to the right or left of the perpendicular line.

Breech presentations: Above the transverse line and to the right or left of the perpendicular line.

Shoulder presentations: On the perpendicular line midway between its point of intersection of transverse line and the pubes.

After assuring yourself that all is well, inquire into the condition of patient's kidneys and bowels, and if the bowels have not acted, relieve them with an enema of from a pint to a quart of warm soapsuds. If this is not attended to labor may be delayed, and the danger of a tear in a greatly distended vagina is augmented. During the first stage of labor permit the patient to get up and walk around, making examinations as often as the necessities or indications of each case demand.

Before the woman is put to bed to stay, the mattress should be protected by an oilcloth or mackintosh, and over this a folded quilt or sheet, and over the bed-sheet I have placed another sheet or some clean cotton. The Kelly pad may be used with advantage. As labor advances and the first stage is about to pass into the second, that is, after the os is completely dilated, always place a cloth or sponge next to the patient to catch the escape of the liquor amnii. In a primipara I rarely rupture the membranes, as they dilate the outlet gradually and in that way help to avoid rupture; but in a multipara I usually rupture the bag of waters at the end of the first stage of labor by puncturing them between pains.

In the first stage of labor when the pains are very painful—cutting pains—and doing very little good, to save the worry to my patient I sometimes give a little chloral or morphine to ease them. During the second stage of labor I keep my patient in bed, and when the head has reached the floor of the pelvis the patient may sit up in bed during the pains, with her feet against the footboard. I have her pull upon a sheet or something attached to the foot of the bed, or if she prefers I let some one hold her hands. If the cervix be directed backward and to one side, hook the fingers into it in the intervals of a pain and draw it toward the center of the parturient canal.

Occasionally the anterior lip of the cervix becomes impacted between the head and the pubes; to overcome this, press up the anterior lip in the interval of pains and hold it above the head when the pain comes on. During labor if the pains are short and not of sufficient force, I sometimes give ten grains of quinine and have the abdomen well rubbed with camphor, and if the abdomen is very pendulous I fasten a band tightly around the upper part of it. During the latter part of the second stage of labor most authorities have their patients lie on their side, the knees drawn up and a folded pillow placed between them.

It is a fact that in this position naturally there is less danger of rupturing the perineum, but I usually let my patient lie on her back, her legs and thighs semiflexed and her knees well apart, and when the head has put the perineum well on the stretch I introduce the index and middle fingers of my examining hand into the rectum and pull the perineum forward toward the symphysis, the thumb at the same time making pressure on the head so as to retard its progress. When the head is about to pass out I have my patient open her mouth and breathe fast. If the uterine contractions are too severe they may be controlled by giving an anesthetic (some use ether, but I prefer chloroform).

I always put off the use of an anesthetic in labor to as near the end of the second stage as I can. I never push it to complete anesthesia, only using it to modify the severity of the pains, as it may prolong labor and superinduce post-partum hemorrhage. The head may be delivered in the interval of pain by drawing the chin downward, lifting the perineum forward, thus preventing rupture. I do not believe a physician is ever justified in making an incision into the perineum to save a tear. As soon as the head is born make a sweep of the forefinger between the child's neck and maternal symphysis to see if the cord is around its neck. If so, make gentle traction and draw the loop large enough to slip it over the child's head; after this the head of child should be held in one hand, while the other, placed upon the abdomen, follows the uterus down as it descends, and forces out the body.

During the delivery of the shoulders the expulsion should usually be left to uterine contraction. The most common cause of delay at this stage is the arrest of the anterior shoulder under the symphysis; to liberate this make traction directly downward. It may also become necessary to assist the expulsion of the posterior shoulder by lifting the head toward the symphysis, at the same time making slight traction.

When the child is born have the nurse make gentle pressure over fundus of the uterus. If the child does not cry out clear the mucus from throat and mouth with the finger, place the child in a basin of hot water, and dash cold water on the chest until breathing is established. A good plan is to introduce finger into its rectum; there are numerous other plans, but I believe these to be the best. Always lay the child on the right side, as this position favors the closure of the foramen ovale. After respiration is well established tie the cord, waiting a

sufficient time for the blood to flow from the placenta before so doing. The first cord should be tied about three fingers' breadth from the umbilicus, the second about two inches from the first, nearer to the placenta.

There are three things to be considered in the third stage of labor: First, to assist in the delivery of the placenta; second, to keep up uterine contraction, and third, to prevent hemorrhage. I usually wait fifteen or twenty minutes after the delivery of the child before assisting in the delivery of the after-birth. I always use Credé's method in the expression of the placenta. After the placenta has been expelled into the vagina, traction may be made upon the cord and extraction slowly accomplished, at the same time keeping up pressure upon the fundus of the uterus. If there is any indication or tendency to hemorrhage at this time, I administer a half-dram dose of ergot, otherwise I do not give any; but I make gentle pressure and some friction over the uterus for some thirty minutes after the escape of the placenta to keep up firm contraction.

To remove the vernix caseosa from the child I use warm lard or vaseline. After bathing the child it should be dried and dusted all over with borated talcum powder; after dusting the cord well place it on the left side, wrapped in a piece of soft cloth or cotton, then apply the belly-band not too tightly, as the lungs will expand. After delivery the external organs of the mother should be cleansed thoroughly with an antiseptic solution and repeated after this as often as necessary to keep up cleanliness. All soiled linen should be removed from bed and mother, and changed as often as necessary. I generally use a binder for the purpose of keeping up pressure over the uterus and preserving the original figure of the patient.

In normal deliveries it is not only useless, but I consider it bad practice, to use vaginal injections. It is best to have your patient lie on her back during the first few days of her puerperium and to remain constantly in bed for at least ten days. The physician must give specific directions in regard to rest and quiet, permitting only those necessary to wait on the patient to remain in the lying-in room for the first few days. If the after-pains are too severe, give ergot to produce free contraction of the uterus and add opium to diminish the pain of contraction, as they are usually caused from a relaxed womb and accumulated blood-clots.

In extreme cases it may be necessary to give a hypodermic of morphine. The diet is a matter of no small importance during the

puerperal state. I prefer a light diet, chiefly of milk for the first few days, gradually increasing it until on the sixth or seventh day, when the patient may take any food suitable for a healthy person in bed. In this way you will avoid many of the inflammatory conditions about the genitals and breasts.

The physician is often annoyed by having to use a catheter after confinement to relieve the over-distended partially paralyzed bladder, which may be avoided if you will caution the nurse and patient to use the bedpan on the slightest inclination to urinate. On the second night after delivery give a purgative, and repeat on the following morning if necessary. After the mother has had some rest the baby should be put to the breast—it stimulates uterine contractions if nothing more. If the breasts become engorged, accompanied by symptoms of heat, pain, and fullness, give a saline purge; put baby to breasts every two hours. If the secretions are excessive use breast pump, and have the nurse rub and massage the breasts toward nipple, using vaseline. You may apply cloths wet in lead-water and laudanum.

It is best for the obstetrician to remain for at least an hour after delivery, and in country practice, where we can not revisit the patient as often as our city cousins would under similar circumstances, be sure and leave specific directions for them to call you should any untoward symptoms occur.

MUNFORDVILLE, KY.

SOME ABNORMAL PSYCHICAL CONDITIONS IN CHILDREN.*

BY GEORGE F. STILL, M. A., M. D., CANTAB., F. R. C. P. LOND.

Assistant Physician for Diseases of Children, King's College Hospital; Assistant Physician to the Hospital for Sick Children, Great Ormond-street.

In a preceding lecture we were considering the occurrence of morbid defects of moral control in children without general impairment of intellect and without physical disorder: I pointed out that we could recognize certain groups of cases differing in the time of onset and in the duration of the disorder; that whilst in some cases the defect of moral control dated from the earliest period at which such control becomes possible, in others nothing abnormal was observed until the child was already several years beyond the age of infancy. Further I pointed out that whilst in some cases the defect appeared to be due to a congenital limitation of the capacity for the development of moral control, in others it seemed to be the result of an arrest of such development at a very early stage by some physical disease affecting the brain in infancy. In another group of cases there appeared to be a loss of already acquired moral control; and it was shown that whilst in some cases the loss was probably permanent in others it was temporary.

In illustration of this temporary loss of moral control cases were quoted in which the psychical disturbance, after passing off, showed no tendency to recur; but there is yet another subdivision of this group and one of considerable practical importance—cases in which periods of defective moral control alternate with periods in which no such defect is present, or it may be that with some degree of permanent defect exaggerations of this defect occur at irregular intervals. A boy, aged eleven and a half years, was sent to me with this history: For weeks together he was affectionate, well-behaved, and in no way troublesome, then he would seem to lose his moral control to a greater or less degree for several days, during which he became quite dangerous in his spitefulness, seizing every opportunity to inflict pain on other children, banging their heads against the walls or desks, twisting their arms and otherwise maltreating them. During these periods he became dishonest and untruthful and had to be watched carefully to prevent the thefts which he perpetrated whenever he had the chance; at these times he also masturbated shamelessly and even exposed himself

* Reported in the London Lancet.

indecently in the class at school. The slightest provocation at such times produced an outburst of rage in which he scratched the skin off his hands and face till they bled, and ground his teeth and wrung his hands. When punished for his thefts with beating he cried and protested that he would never do it again, but he stole again within the next few days. This was a well-grown boy who talked brightly and intelligently and was said by his school teacher to be by no means backward in school attainments—certainly so far as reading and calculation were concerned he appeared to be fully up to the average—but his gait, with his elbows slightly flexed and wrists loosely dropped, suggested a lack of mental tone, if I may use so vague an expression. His head was square and rather large, its maximum circumference being 21⅜ inches; his palate was very high and narrow, forming a sharply pointed V. There was no history of insanity or epilepsy in the family, but there was a noteworthy fact in the boy's history, that just after measles in infancy he had severe convulsions and was said to have been comatose for three days. Similarly a boy, aged thirteen years, had been subject to outbreaks of a propensity to steal from very early childhood. For several months together he was as honest as other children and showed no tendency to steal, then for a short time, perhaps a day or two, he stole numerous articles, sometimes of considerable value, sometimes almost worthless, and displayed some ingenuity in concealing his thefts. Another boy, aged thirteen years, showed a similar recurrence of passionateness. From infancy up to the age of six years he had banged his head against anything near on the least provocation, and although this head-banging has now ceased he still has outbursts of excitement with extreme passionateness in which he has at various times kicked and struck his mother, and becomes so unruly that it is necessary to give him bromides during these outbreaks. The sister of this boy was mentioned in my last lecture as having shown very similar manifestations for a few months only, and their mother complains of a nervous twitch in her face and limbs occasionally. In view of such cases as these we must, I think, add recurring loss of moral control to the moral disorders which we have already considered.

For the sake of clearness these disorders might be grouped thus: 1. Morbid failure in development of moral control: (*a*) congenital limitation of capacity for moral development; and (*b*) arrest of moral development by disease in infancy. 2. Morbid loss of already acquired moral control: (*a*) in relation to physical disease, permanent or temporary

loss of moral control; and (*b*) apart from physical disease, permanent, temporary, or recurring loss of moral control. All these varieties, as we have now seen, may occur apart from any general impairment of intellect.

I turn now to the clinical facts which seem to corroborate the morbid nature of the moral defect in those cases where there is no confirmation to be obtained from associated physical disease. By far the most striking evidence is to be found in the family history.

Family History. Disorders of intellect, epilepsy, or moral degeneracy of one kind or another figure in the family history in a considerable proportion of these cases. This point was noted in seventeen out of twenty cases, and twelve patients out of the seventeen showed evidence of instability of this kind: (1) the father was insane and had murdered the child's mother: (2) the father was a confirmed drunkard; (3) the father was feeble-minded, he deserted the mother before the birth of the child; (4) the father was a sexual profligate, he deserted the mother when the child was an infant; (5) the paternal grandfather was of immoral character; (6) the maternal grandfather died from diabetes, two maternal uncles were confirmed drunkards, and a third has attempted suicide twice; (7) the maternal grandfather tried to commit suicide three times, a maternal uncle died in a lunatic asylum, and the paternal grandfather was insane; (8) an uncle and an aunt on the maternal side were both epileptic; (9) a maternal aunt was epileptic and insane; (10) the paternal grandmother was thought to be insane; (11) an uncle had epilepsy, and the mother was neurotic; and (12) the mother was neurotic and the child's brother has recurring attacks of passionateness.

"*Stigmata of Degeneration.*" Another link in the chain of evidence is the presence of certain anomalies of physical conformation in many of these children. No less than fifteen out of nineteen cases in which the point was investigated showed obvious anomalies. The most frequently noticeable feature was the large size of the head. In fifteen cases head measurements were taken; in seven of these the maximum circumference was decidedly above the average for the age; in one case only was the measurement considerably below the average. This will be seen from the accompanying table, in which the average normal measurement (maximum circumference) for the year is given for comparison; the normal average is taken from statistics collected chiefly at the Children's Hospital, Great Ormond-street.

In four out of the fifteen cases the frontal region was abnormally narrow. The palate showed some deformity in seven of these fifteen cases; all the seven were strikingly high and narrow and two of them formed a sharply pointed V anteriorly; in an eighth case it was noted that the palate was unduly high and narrow but not to such a marked degree as in the seven other children. To these anomalies I should attach very little importance if they stood alone, but taken in conjunction with the family history, with the manifestations of defective moral control, and sometimes with other mental or nervous peculiarities in

TABLE SHOWING HEAD MEASUREMENTS IN CHILDREN WITH MORBID DEFECT OF MORAL CONTROL WITHOUT GENERAL IMPAIRMENT OF INTELLECT.

Age of child.	Maximum circumference of the head in inches.	Average maximum circumference (inches) for the year in normal children.	
$4\frac{8}{12}$ years,	21	19.6	4 to 5 years.
$4\frac{9}{12}$ "	$20\frac{3}{4}$	19.6	
5 "	$20\frac{1}{4}$	19.8	
$5\frac{4}{12}$ "	$20\frac{1}{4}$	19.8	5 to 6 "
$5\frac{10}{12}$ "	20	19.8	
6 "	21	19.9	6 to 7 "
$6\frac{1}{2}$ "	$21\frac{3}{8}$	19.9	
9 "	$20\frac{3}{4}$	20.3	
$9\frac{1}{12}$ "	$20\frac{1}{8}$	20.3	9 to 10 "
$9\frac{1}{2}$ "	$21\frac{3}{8}$	20.3	
10 "	$20\frac{3}{8}$	20.4	
$10\frac{1}{2}$ "	$20\frac{3}{8}$	20.4	10 to 11 "
$11\frac{1}{12}$ "	$19\frac{5}{8}$	20.4	
$11\frac{1}{2}$ "	$21\frac{3}{8}$	20.4	11 to 12 "
$13\frac{1}{12}$ "	$21\frac{1}{8}$	21	13 to 14 "

the child, they may, I think, carry some weight as evidence of abnormal development. Some observers, no doubt, would have found other so-called "stigmata of degeneration" in the epicanthic fold which was present in two cases, in the prognathous aspect in two others, in the unusually early signs of puberty in two, and even in the sluggish circulation, marked by cold or blue extremities, in another.

Associated Nervous and Mental Disorder. There is, however, further, and to my mind important, evidence on this point in the relation of the moral defect to other morbid nervous and mental conditions. In one of the most striking cases of morbid defects of moral control which has been recorded[1], the boy even when he reached the school age would eat plaster, chalk, wood, covers of books, pieces of blanket, and so on—in fact, showed that curious psychosis which goes by the name of "pica." The history of twelve years of this boy's life, up to his outrageous marriage at the age of fifteen years, is one long story of stealing, lying,

1 Boston Medical and Surgical Journal, May, 1888, p. 537.

lack of natural affection, indecency, sexual immorality, and an attempt at suicide. His general intellectual development was precocious, for he was able to read and recite at three years old. It is interesting to observe that it is specially noted in this case that "the head is large." A somewhat similar perversion of appetite, although hardly amounting to "pica," was present in one of the cases which I mentioned in my last lecture. A boy, aged five years, with marked defect of moral control, was said to eat strange things. Just after having a good meal he would steal raw meat and eat it, and he would pick up and eat a dirty piece of orange-peel out of the ashes in the grate. Some of these children are somnambulists, or show other evidence of nervous instability in night-terrors or in pronounced, almost choreiform, fidgety movements, such as I have referred to under Dr. Warner's term, "microkinesis," and I have mentioned the occurrence of diurnal incontinence of feces in one case—a phenomenon which is not infrequently associated with other symptoms of unstable nervous equilibrium in children who show no impairment whatever of intellect. The relation to insanity also (I use the term here to exclude the defect of moral control which we are considering) points very strongly in the same direction. I referred to the father of one of these morally defective children who had himself shown a morbid defect of moral control from his earliest years in extreme passionateness, quarrelsomeness, and jealousy. On reaching adult life he developed maniacal symptoms and murdered his wife. In another case, which was not under my own observation, morbid defect of moral control in a child was followed in early adult life by insanity, and the girl to whom I referred as having shown permanent loss of moral control after scarlet fever at the age of seven years subsequently (apparently in adolescent or early life), after some disappointment, jumped off the roof of a veranda and was found below "screaming and maniacal." The acute mental disorder lasted for two days.

The occurrence of loss of moral control, as a marked feature of incipient insanity, has been emphasized by Dr. Savage, and the occasional occurrence of insanity in the after-history of these children, with defective moral control, seems to bring these disorders which we have considered into very close relation with the more general morbid state of mind which is seen in insanity. And, indeed, although insanity is rare in childhood there are cases in which it seems clear that loss of moral control in children, as in adults, is a symptom of active insanity;

for instance, a backward girl, aged ten years, who was under my care, one week after an attack of influenza became self-willed and difficult to manage. She seemed to have lost her affection for her mother, said that she wished that her mother was dead, and that she would run away from her. A fortnight later she was brought home from school, where she had suddenly begun rushing round the room crying and singing. She continued in a state of wild restlessness for one day and then gradually became less excited, and three weeks after the onset of mental symptoms she had regained her normal state as a tractable, good-tempered child. In another case a boy, aged eight years, became passionate and unruly after a blow on the head, but the moral change was accompanied by attacks of excitement alternating with depression and definite religious delusions. Such cases as these are obviously in a different category from those which we have been considering, but they may serve to emphasize the closeness of the relation between defect of moral control and other morbid mental states in children.

We are, I think, justified in concluding that apart from the character of the manifestations of moral defect, which, as I have already pointed out, are often in themselves strongly suggestive of a morbid mental state, there are good reasons for admitting the existence of a morbid defect of moral control in children without any such general impairment of intellect as is ordinarily recognized as imbecility, feeble-mindedness, or insanity.

I come now to the consideration of the psychical conditions which obtain where moral control is morbidly defective, with or without physical disease, and apart from any general intellectual impairment.

As in the cases which I considered in my first lecture, there are three factors which have to be taken into account, but inasmuch as it is evident that here there is no interference with the cognitive relation to environment, it would seem that the failure of moral control must be due either to deficiency or loss of moral consciousness or to some failure of volition. In so far as these cases have been recognized at all as due to a morbid mental state, there has been a tendency to assume that they must be due to a morbid lack of moral consciousness, or, as some would call it, "moral sense," but whilst there seems to be good reason to believe that in certain cases this is so, it is an extremely difficult point to determine. To a certain extent one can judge from the child's conduct whether moral consciousness is present with regard to the

particular activity—for example, from his efforts to conceal his vicious acts, from shame on discovery, and from remorse after the act; but there is an obvious fallacy in the fear which arises out of the memory of past punishment. For instance, a boy whom I have mentioned before had been punished many times for theft; he took great pains to conceal his stealing, and made great protestations of sorrow and reform on discovery, but he would commit the same offense again very quickly, and neither for this nor for his filthy habit of willfully defecating in bed did he show any shame. There could be little doubt that his sorrow was only an attempt to avoid punishment and was no more evidence of moral consciousness than the cowering of a dog after a fault for which it has been whipped on a previous occasion. But even when it seems obvious that moral consciousness is defective, care is needed to distinguish the defect which is the manifestation of a morbid condition from that which is the result of deficient training, and it is necessary to take into careful consideration in each individual case the environment and the age of the child. After allowance has been made, however, for all these various sources of fallacy it seems clear that in some children—for instance, the boy just alluded to—there is a defect of moral consciousness which can not be accounted for by any fault of environment, and the fact that in some cases the defect dates from very early childhood and has already persisted for several years seems to point to a morbid limitation of the capacity for the development of moral consciousness. In some of the cases also where loss of already acquired moral control occurs there seems to be a loss of moral consciousness, and if this particular factor in moral control be, as one can hardly doubt, the highest and latest product of mental evolution, a special liability to loss or to failure in development would be quite in accordance with the phenomena of evolution.

As a matter of speculation one might suggest that in some cases the incapacity for the acquirement of moral consciousness is a developmental reversion to an earlier type; and in this connection one might mention a curious trait which is noticeable in some of these children—namely, solitariness: the child shows no inclination to associate with or to make friends with other children, and although apparently perfectly intelligent shows a complete lack of natural affection, so that its parents seem hardly more to it than any stranger might be—a point which may have some significance if the view be adopted that "so-

called moral sense is aboriginally derived from the social instincts" (Darwin).

But the third possible factor in defective moral control—namely, a morbid failure of volition—has also to be considered. Moral control, as we have seen, is concerned not only with such deliberate acts as stealing and lying, but also with those activities which are connected with the emotions, and, as I mentioned in reference to cases of cerebral tumor, the defect of control of these particular activities is sometimes associated with a morbid exaggeration of emotional excitability which is quite independent of defective moral control. This is clearly shown by the expression of such an emotion as fear, which has no moral relations; for instance, in the case of a girl with pontine tumor, to whom I referred in my last lecture, during the period in which she was subject to outbursts of rage there was also an altogether abnormal degree of timidity. The child started and shrank away when she was looked at by any stranger and burst into tears whenever attention was drawn to her. It seems probable that in such a case inhibitory volition has to cope with a morbid increase in the tendency to certain activities—in physiological terms a morbidly exalted irritability of nervous centers—so that even without absolute defect of volition it may become relatively insufficient.

As I have already pointed out, the fact that a morbid failure to control those emotional activities which have no moral relations is sometimes associated with failure to control those other emotional activities with which moral control is concerned, such as passionateness and jealousy, strongly suggests that the same cause underlies the failure in both cases, and that this is a deficiency of inhibitory volition rather than any impairment of moral consciousness. And there is some reason to believe that outbursts of rage in some of the cases where there is no evidence of cerebral lesion may be due to a similar exaggeration of excitability with consequent insufficiency of inhibitory volition. I have already referred to a boy in whom recurring attacks of passionateness were accompanied by recurring excitability. In a younger boy, between three and four years of age (whose case I have not included in any of the statistics mentioned on account of his very early age), great excitability with altogether abnormal timidity and the occurrence of those curious paroxysms of fear which have been called day-terrors, and in which the boy would suddenly scream with fright several times a day without any apparent cause, were associated with

extreme passionateness, so that on very slight provocation he would kick and bite. In this case it was specially noted that after the outbursts of rage he would caress the injured person in evident remorse.

It seems at least possible that a similar lowering of resistance, if one may so describe the nerve-cell alteration, whatever it may be, which underlies an increased excitability of nervous centers, may account for other manifestations of morbid defect of moral control. A stimulus, whether it be in the nature of a percept or a concept, which in the healthy mind would have only such a tendency to excite a particular activity as could be controlled by inhibitory volition might, in a morbid condition, excite such activities as stealing, lying, vicious or spiteful acts, with an intensity which is beyond the control of inhibitory volition, and this quite independently of any lack of moral consciousness. Take, for instance, the case of the boy, aged eleven and a half years, whom I mentioned at the beginning of this lecture : his mother stated that in the midst of playing quietly with other children he would suddenly seize two of them and bang their heads together, making them cry with pain, and, she added spontaneously, "he seems unable to resist it." Some of these morally-defective children who steal things without any apparent object have said that when they saw the thing they felt an irresistible impulse to take it.

But in the absence of any morbid increase of excitability the defect of inhibitory volition would seem in some cases to be absolute rather than relative, and any further analysis of the psychical alteration can only be tentative, especially in the obscurity which surrounds the psychology of volition. Adopting, however, the view that "effort of attention is the essential phenomenon of will" (James), I would point out that a notable feature in many of these cases of moral defect, without general impairment of intellect, is a quite abnormal incapacity for sustained attention. Both parents and school teachers have specially noted this feature in some of my cases as something unusual. I have mentioned the case of a boy with moral defect who would repeat the process of saying "Good-night" several times before he was aware that he had done so; the same boy would often put his boot on the wrong foot apparently without noticing it. Another boy, aged six years, with marked moral defect, was unable to keep his attention even to a game for more than a very short time, and, as might be expected, the failure of attention was very noticeable at school, with the result that in some

cases the child was backward in school attainments, although in manner and ordinary conversation he appeared as bright and intelligent as any child could be.

These considerations on the nature of the defect may appear too speculative to have any practical value, but I venture to think that they have some basis in clinical fact, and my reason for bringing them forward in this connection is to emphasize the possibility that other morbid conditions beside defect of moral consciousness may be responsible for defect of moral control. The child who steals repeatedly, or lies, or with or without apparent provocation inflicts injury on other children, and is proved to have full knowledge of the wrongness of his acts, may nevertheless be just as truly led thereto—or, shall I say, allowed thereto—by a morbid mental state, as the child whom we believe to be suffering from a morbid defect of moral consciousness.

There remains another point which may well be considered here and which is of considerable practical importance—namely, the intellectual condition of these children. Is a morbid defect of moral control compatible with a perfectly normal state of the intellect? The difficulty in answering this question depends largely upon the difficulty of defining exactly what is meant by "intellect." As I have already pointed out, moral consciousness itself may be regarded as an intellectual function, and its disorders therefore as disorders of intellect, and even volition, although itself hardly an intellectual process, is very closely connected therewith. But if we disregard psychological analysis and restrict the term "intellect" to its meaning in common usage, making it almost synonymous with intelligence, and taking as our gauge the capacity for ordinary educational acquirements, then I think that it is possible to answer this question very decidedly. At least eight of my twenty patients were fully up to the average in intellectual capacity. They were bright, intelligent children, capable of any ordinary school work adapted to their age; and, indeed, one of the worst and most disastrous cases did excellently for a time, so far as educational progress was concerned, at a large public school. The remaining twelve patients had passed for children of average intellect, and in some of them I think it would have been difficult to persuade any person without special experience that there was any intellectual flaw. Two of them, however, were undoubtedly backward, although they had for some years taken their place with children of their own age. Two others, although reported by their school teachers to be of average intellectual capacity, were, in my opinion, dull and slow. In

some of these children there was, as I have already mentioned, a marked inability to concentrate and to sustain attention; in others memory seemed abnormally defective, and in at least two cases where the child was thought to be of average intellectual capacity there seemed to be an abnormal lack of judgment in regard to everyday matters apart from their moral relation. It would seem, therefore, that in the large majority of these children with morbid defect of moral control without physical disease, and without any such general impairment of intellect as is commonly recognized as imbecility or even feeble-mindedness, careful, and perhaps in some cases only expert examination, will detect some abnormality of intellectual processes which in its most pronounced degree may form a link between this group of cases and those which I considered in my first lecture. But I wish to insist upon the fact that if ordinary intelligence and the capacity for educational acquirements be taken as the gauge of intellect then there can be no doubt whatever of the compatibility of an apparently normal intellect with a morbid defect of moral control.

It is clear that although there is no general impairment of intellect in these cases there is a psychical defect which may or may not be associated with abnormality of particular intellectual processes. The nature of this psychical defect we have already considered, but the cause of its occurrence remains obscure. That there is not only a perversion of function in the higher nervous centers but an actual physical abnormality underlying the moral defect seems more than probable. We have seen that the association of defective moral control, with general impairment of intellect, is sometimes observed in forms of imbecility in which either a gross lesion or a developmental abnormality of structure is known to be present in the brain, and also that gross lesions of the brain, such as meningitis and tumor, may cause loss of moral control in children who show no general impairment of intellect. The structural changes, however, in these cases, so far as we can judge from the small amount of evidence which is available, are not sufficiently constant in their localization to allow us to say that a lesion here or a lesion there will produce moral alteration, and the fact that a similar moral change occurs after more general diseases, particularly the specific fevers, and is followed sometimes by complete recovery, suggests that cell-modification, dependent upon interference with cell-nutrition, may be the physical basis of the moral defect.

The very striking relation to the specific fevers strongly supports the view that toxic substances, such as are known to be present in the blood in some of the fevers, may be the determining cause of the alteration in cell-nutrition, and the results of recent research on epilepsy would justify a similar explanation of the relation of moral change to epilepsy. The gradual accumulation of toxins in the blood prior to the epileptic seizure would correspond to the loss of moral control during the days immediately preceding the fit. More localized causes also, such as inflammation of the meninges with its accompanying affection of the subjacent cortex, increased pressure from the presence of intracranial tumors, and head injuries, might be expected to interfere with cell-nutrition.

The occurrence of abnormalities of cell-structure in the brains of idiots who show no gross lesions suggests that cell-modification occurring during intra-uterine life or in infancy may account also for the limitation of capacity for moral development which we saw to occur in some children without any general impairment of intellect; and this suggestion finds some support in clinical facts. In two out of five cases in which there was no family history of insanity, epilepsy, or moral degeneracy, there had been severe convulsions in infancy, and one of these two patients, whom I have mentioned above, was said to have been comatose with the convulsions for three days. In some of the cases brought under my notice by Dr. Savage there was a history of very difficult and prolonged labor, and I have referred to one case which came under my observation for morbid defect of moral control in which a difficult and instrumental labor had resulted not only in a marked degree of asphyxia, so that there was considerable difficulty in establishing respiration, but also in an Erb's paralysis; in others the mother had had some illness during pregnancy, and a premature birth in some cases may also have pointed to ill-health in the mother as a cause of defective development in the child; in fact, it would seem that the same causes which produce idiocy or imbecility in one child may produce limitation of capacity for moral development in another; and this is exactly what might be expected if moral control be, as I have suggested, the most recent and therefore most unstable product of mental evolution. Any cause which acting on the brain with greater intensity—that is, producing more profound alteration of cell-nutrition—leads to general impairment of intellect, may, when acting with less intensity, interfere only with the highest, the moral, function.

Perhaps I may be allowed to add to these speculations on the physical basis of morbid moral defect yet another which also has some support in

closely allied conditions. The cell-changes which have been found in some forms of insanity, in which heredity plays a prominent part, suggest that a morbid loss of already acquired moral control, with or without obvious physical disease and quite apart from any such mental change as would ordinarily be recognized as insanity, may be traceable to a low initial vitality of nerve-cells, determined it may be by heredity or other ante-natal influences.

Having now, as I think, shown that failure of moral control in a child of apparently normal intellect may be a morbid manifestation, however doubtful may be the exact nature of its physical basis, I shall venture to devote the short time that remains to some purely practical considerations arising out of the facts which I have mentioned.

The serious danger which these children constitute both to themselves and to society calls, I think, for more active recognition. We, at any rate, as advisers of parents and guardians, have a clear duty in warning them of the disasters which may occur. The pernicious influence which some of these morally defective children may exert on other children is appalling to think of. I have said very little about the sexual immorality which accompanies the other manifestations of morbid defect in some of these cases, but it is too important to be disregarded. Apart from masturbation, which is common in children who show no morbid defect of moral control, these children not infrequently show a desire to expose themselves indecently, especially to children of the opposite sex, and they sometimes show such unbridled lust that they are not safe to be left alone with other children. I shall not go into details, for they would serve no useful purpose. I will only say that even some years before these children reach puberty their relations with other children may be most impure, and that as they approach puberty the danger naturally becomes more serious, and in cases under my own observation, as in recorded cases, the uncontrolled sexual instinct has led to most outrageous and precocious immorality.

The possibility of physical injury both to themselves and to other children has also to be remembered. I have mentioned cases in which during outbursts of rage reckless attacks were made on others with knives, sticks, and missiles of various sorts; but, apart from passionateness, spitefulness and cruelty may lead to serious results. A boy, aged ten and a half years, was brought to me with a history that he had always been difficult to manage, but that he had been more outrageous during the past two or three years. He showed an almost diabolical ingenuity

in inflicting pain on others. He had two baby-brothers, twins, aged two years. He put some shells in the oven on a tray, and when they were well heated he told these two babies to hold out their hands for the shells, which he then poured off the tray and so burnt their hands. Sometimes he would strike them on the head and make them cry apparently in wanton spitefulness. He persuaded his sister, aged four years, to sit on the back of a chair which he steadied by sitting on it until she was up and then he deliberately let the chair fall over backwards with the result that she struck her head and cut her lip, while he stood and laughed with enjoyment. He was cruel to animals; he would tie a string tightly round a kitten's neck, almost strangling it. The mother said that he was always trying to injure animals, so that she was afraid to keep any pets in the house. He was very untruthful and stole money which he gave away to his schoolfellows. He had behaved indecently both with girls and boys. This child was supposed to be of normal intellect, but he was backward at school. He had the curious, sullen manner which was noticeable in several of my cases; his frontal region was rather narrow, although the circumference of the head (20⅜ inches) was about normal. His paternal grandmother was thought to have been insane.

These children may also inflict injury on themselves. As I have pointed out, the keynote of the manifestations of morbid defect of moral control is self-gratification ; and if for the moment "not to be" seems less irksome than "to be" they may not hesitate to choose it. A boy, aged ten years, who had been under my observation as a hospital out-patient because he was troublesome and unmanageable and easily flew into a rage, one evening in one of these outbursts made a determined attempt to cut his throat and was only restrained by physical force. Another child, a girl, aged eleven years, was extremely passionate and was said to maltreat her younger brothers and sisters. For instance, on one occasion their screams attracted the attention of the neighbors, who came in and rescued the children, who were scarcely more than infants, from their sister, who was amusing herself by beating them with a thick rope. On one occasion this child was caught just about to throw herself from a third-story window. She was a child of average intelligence, but with a small head, a narrow frontal region, and a very high palate. Her father drank heavily. She had been sent to a lunatic asylum for a short time before I saw her, as she was thought to be dangerous. I have referred to the record published in America of twelve years in the life of

one of these children. This boy, at the age of about fourteen years, when not allowed to have breakfast with the rest of the family and threatened with punishment by his grandfather for stealing some money, deliberately shot himself, with very serious, but not fatal, result.

Apart from these risks there is the likelihood, nay, almost the certainty, that children with the more profound and permanent disorders of moral control will, if not protected from themselves, sooner or later bring public disgrace upon themselves and the families in which they belong and possibly be punished as criminals in spite of the evidence that their acts are the outcome of a mental state just as morbid as the more generally recognized imbecility or insanity. But whilst I think that it is only right to warn the parents of the possible dangers, it would seem, both from my own observation and from cases which have been brought under my notice by others, that the outlook is not so grave in all cases. Even where there appears to be a limitation of the capacity for the development of moral control the condition would seem to be comparable to imbecility in the capacity for development up to a certain limited extent; it is, in fact, a limitation, rarely, if ever, a complete absence. The limit of possible improvement may be a very narrow one and, whether it be narrow or wide, there is probably little hope in this particular group that the child will ever acquire a normal degree of moral control; but during the earlier years of childhood it is hardly possible to foresee to what extent careful training and environment will improve these cases.

With regard to those children in whom loss of already acquired moral control occurs as a morbid condition, with or without physical disease, it would seem that in some cases the condition is comparable to a temporary insanity and passes off after a variable duration, which may be days or months, and, as I have pointed out, in some cases it recurs at intervals like a recurrent mania. But it can not be said that there is always recovery from these acquired defects. In the case recorded by Dr. Hack Tuke in which moral control was lost after scarlet fever at the age of five years, the patient still showed the moral defect when he had reached adult life, so that he required special supervision.

One other point may be mentioned in this connection—namely, the apparent improvement for a time in some of these cases when the surroundings are changed. A common history is that the child has been tried at various schools and at each fresh school has seemed for a time to have overcome his morbid propensities, but no sooner have the surround-

ings become commonplace and familiar than some fresh manifestation of his moral defect leads to his disgrace and early expulsion; similarly I have seen cases admitted to hospital on account of a supposed morbid defect of moral control and with a circumstantial narrative of some years of outrageous behavior, but during the few days or weeks it was possible to keep them in hospital the behavior has been exemplary, although in most of them the physical peculiarities to which I have referred, or some oddity of manner, together with the family history, left no reasonable ground to doubt the parents' statements. It would seem that, as happens sometimes with hysteria and even with insanity in later life, the extra stimulus of unusual surroundings adds as it were a temporary reinforcement to volition, so that the morbid defect becomes latent for a time.

There are other aspects of this subject which it would be out of place to consider here, but which are none the less of extreme importance for the welfare of these unfortunate children and for the good of society. The problem of education in face of the paramount necessity for separating some of these morally-defective cases from other children; the method of providing the constant and close supervision which is so essential in the management of these cases and which is often so impossible for the middle and poorer classes; how far restraint by confinement in special institutions is called for; and, last but not least, how far these children are to be held responsible for their misdoings—all these are questions which call urgently for consideration in their proper place. My object in these lectures has been simply to investigate the occurence in children of morbid mental states in which only, or chiefly, the moral control is affected, and to determine as far as possible under what conditions these morbid defects of moral control arise. I am only too conscious that I have but touched the fringe of an extremely difficult and complicated subject, but I shall have amply succeeded in my purpose if these lectures serve to draw attention to morbid conditions which have so far-reaching an importance.

PERICHONDRITIS OF THE LARYNX.*

BY MARSHALL R. WARD, M. D.

Perichondritis of the laryngeal cartilages is by no means a common affection. It usually precedes a chrondritis, in which case the attending results are always of the most serious import. If we exclude traumatism the etiology is always more or less obscure. We have it following tubercular and malignant disease of the larynx, syphilis, typhoid fever, diphtheria, scarlet fever, erysipelas, in fact, any infectious process wherein there is serious disturbance to nutrition. Bosworth[1] reports thirty-three cases collated by him, two of which occurred in his own practice. Of these thirty-three cases nine are given as idiopathic, nine as syphilitic, eleven followed typhoid fever, one was diphtheritic, one traumatic, and two were probably due to lordosis. No mention is made of the cases due to tubercular and malignant disease, they being excluded on account of the graver symptoms which overshadow the acute idiopatic form of the disease. This tabulated list, while not large, gives us an approximate idea of their frequency from an etiologic standpoint.

The morbid changes which may take place in the laryngeal cartilages differ in no respect from cartilages elsewhere. In a chondritis and perichondritis due to traumatism and rheumatism, the inflammatory exudate will likely terminate in absorption and resolution. The same may follow as a result of typhoid fever. But in the specific forms of the disease where the pathological changes are due to an infectious process, serious destruction to the cartilages and consequent deformity of the larynx may be expected.

The perichondrium being a dense fibrous membrane, when suppuration once begins beneath it, the pus will burrow along between the cartilages and its coverings, cutting off the blood supply, when necrosis follows and the cartilages may be exfoliated *en masse*. When this stage is reached the tumefaction becomes marked, greatly interfering with the function of the parts. If spontaneous evacuation occurs or the pus cavity be freely incised the sequestrum, if detached, may come away with the first rush of pus, and the process of repair be rapid. When, however, the sequestrum or parts of sequestrum remain intact

*Reported in The Laryngoscope.

[1] Bosworth: Disease of the Throat and Nose.

and the necrosis affects only a part of the cartilage, a profuse and long-continued suppuration and consequent impairment of the health supervenes.

Any one or all of the cartilages of the larynx may become involved in the inflammatory process. The thyroid, on account of its location and increased vascularity is, perhaps, the least likely to become affected, is less dangerous to life and is followed by less deformity and impairment to phonation. The frequency with which we meet with specific and tubercular ulcers on the posterior wall of the larynx will, I think, account for the relative frequency of involvement of the arytenoids. When we consider the amount of destruction to the mucous and submucous tissue that sometimes result from a process so infectious, it is a matter of no little surprise that the cartilages ever escape.

The early diagnosis of an acute idiopathic perichondritis and chondritis of the larynx is often attended with serious difficulty. Much will depend on the part or parts affected and the character of the infection. In the rheumatic and non-specific form of the disease, where there is no suppuration or destruction of cartilage, and only slight deformity, the onset is insidious, the symptoms are at no time pronounced, and it will often escape detection. If, however, the process should be an infectious one, it will be followed by marked constitutional disturbance, the same as we might expect to find in a similar process elsewhere. There is a feeling of general malaise, with chilly sensation, and in rare instances a distinct chill, pain in the limbs and back, loss of appetite, rapid pulse, elevation of temperature, etc. The functional disability, which is always an early and pronounced symptom, now manifests itself, and then we have well-marked disturbances to phonation, respiration, and deglutition. These symptoms will vary in intensity according to the cartilages involved and the amount of edema present. There is usually a sense of fullness or distention in the parts, together with tenderness on pressure, especially if the disease is of a specific or tubercular origin. As a rule, however, pain is not a prominent symptom.

In the early stage, laryngoscopic examination will aid us but little to establish a positive diagnosis. The structural changes are by no means pathognomonic and the swelling and inflammation present may be readily mistaken for a more trifling affection. The history of the case, the external subjective and objective symptoms, together with a

careful laryngoscopic examination may aid us much; but it is noly where we have a well advanced case with denuded or exfoliated cartilage, open fistula into which a probe can be passed, that the amount of destruction or the true state of affairs can be determined.

The prognosis must always be guarded. No one can forecast with any degree of certainty the extent of destruction that may follow and the consequent danger to life.

The treatment is both local and constitutional. In the acute stage, if seen early, much can be accomplished by the external application of cold in the form of an ice-pack or Leiter's coil, together with the internal administration of pellets of ice. Failing in this way to promote resolution we may resort to scarification to establish local depletion and proper drainage. Absorbents, preferably in the form of ichthyol and lanolin in equal part applied externally, is recommended by Kyle.[1] In the rheumatic and specific forms, appropriate constitutional remedies should be given. Later the measures must be directed to the relief of the dyspnea, the management of the abscess, if any, and finally the relief of the resulting or threatened stenosis from cicatrices. When tracheotomy becomes necessary, the high operation is considered preferable, in that it affords local depletion and a better opportunity for exploration and subsequent surgical procedure.

In this connection permit me to append the report of a case of specific perichondritis and chrondritis at present under my observation:

L. K., age 53, of German descent, and a saloonkeeper by occupation. Eight years ago I treated him for a specific necrosis of the nose. Present trouble began in July, 1900. The onset was gradual and affected chiefly his voice, until in the course of two or three weeks there was complete aphonia, a troublesome cough, and some difficulty in breathing. Pain was not a prominent symptom. The trouble was thought to be a simple and persistent cold, and for that reason no physician had been consulted until late in September, 1900, at which time he came under my observation.

Patient stated he had lost considerable flesh, which was probably due to his difficulty in swallowing. There was complete aphonia, stridulous cough and breathing, and marked dyspnea on the slightest exertion. There was no tumefaction or perceptible tenderness to pressure over the larynx. A laryngoscopic examination revealed a swelling distinctly circumscribed, of considerable size, and confined to the left arytenoid.

[1] Kyle; Diseases of the Throat and Nose.

The chink of the glottis was so much encroached upon that no view could be had of the vocal and sub-vocal region. The swelling was dark red in color, solid and firm to the touch, and the presence of pus could not be demonstrated either by puncture or incision, both of which were freely applied.

A diagnosis of specific perichondritis of the left arytenoid was diagnosed, and on account of the serious obstruction to breathing and the gravity of the case the patient was advised to go to a hospital, which he refused to do. He was then placed upon potassium iodide and allowed to go to his home. The next day I was hastily summoned and found him cyanosed and gasping for breath. Death was imminent. A tracheotomy was hastily performed, and on introducing the tube I found it angled off to the right. The patient was then sent to the hospital, where he remained for two months. After the operation there was considerable inflammation and swelling around the tracheal wound. This was so out of proportion to the inflammatory reaction that usually follows a tracheotomy that I strongly suspected the presence of a malignant disease. Giving him, however, the benefit of the doubt, the iodides were pushed to their fullest extent until he was taking three hundred grains a day, and after a period of three or four weeks the swelling began to subside. The odor of necrosed bone was distinctly perceptible, and soon exfoliation began. The left arytenoid was the first to become detached and be expelled, while in a fit of coughing.

Numerous other small pieces of ossified and necrosed cartilage, presumably from the cricoid, have since been removed. At present writing, April 16, 1900, I can still demonstrate the presence of necrosed cartilage, which can not be detached or removed. The tracheal tube is worn with comparatively little discomfort. Any attempt to introduce an intubation tube has always proved futile, owing to the collapse of the larynx due to the displacement and destruction of the laryngeal cartilages.

ACUTE PANCREATITIS ASSOCIATED WITH CHOLELITHIASIS AND GLYCOSURIA; CHOLECYSTOTOMY; RECOVERY.*

BY W. GIFFORD NASH, F. R. C. S. ENG.

Surgeon to the Bedford County Hospital, etc.

I am indebted to Mr. John Tait, of Sharnbrook, Bedfordshire, for most of the notes of this case and for the opportunity of seeing and operating on the patient.

A man, aged 60 years, was attacked with pain in the abdomen at 6 a.m. on October 27, 1901. This became worse as the day advanced. In the afternoon the pain became very severe and he had great difficulty in reaching his home. He vomited and felt very weak and ill. On the 28th Mr. Tait was called to see him, and on arrival at 5 p.m. the patient staggered into the room and fell down on the couch in a condition of collapse. His pulse was 160 and very weak and his temperature was 97° F. He complained of severe pain in the back, chest, and abdomen. Hiccough, retching, and vomiting of small quantities of bilious fluid were present. The bowles had acted earlier in the day. His history was as follows: In 1891 and 1892 he had had influenza. For seven years he had occasionally had bilious attacks and suffered from pain and uneasiness at the pit of the stomach. On two occasions, two years and one year previously respectively, this pain had been severe and he attributed it to having eaten celery grown upon a sewage farm. For a few months prior to the present attack his appetite had not been good. He had led a very temperate and regular life, but of late he had taken small quantities of weak brandy and water.

The patient was put to bed, stimulants were given, and linseed poultices were applied to the abdomen. At 11 p.m. on the 28th the temperature was 97° and the pulse was 164. The abdomen was much distended and he was suffering considerable pain. At 2 a.m. on the 29th I saw him with Mr. Tait and found a large, stout, florid man suffering from dyspnea due to the distended condition of the abdomen. The abdomen was everywhere resonant and nothing in the nature of a growth could be detected. Examination by the rectum was negative and the patient did not appear to be ill enough to have a perforation of the stomach or duodenum. The extremely rapid pulse could not be

* Reported in the London Lancet.

explained. Morphine was given subcutaneously. At 8 a.m. we found that the pulse had fallen to 130 and the temperature was 97.6°. Strychnine and digitalin were injected subcutaneously and a pint of saline solution with brandy was given by the rectum. Five grains of calomel with bicarbonate of soda were administered by the mouth; beef-tea was also given. Injections of soap-and-water were given repeatedly through the day. At 1.30 p.m. the strychnine and digitalin injection was repeated. At 6 p.m., as the enormous distention remained, I again saw the patient, with the idea of performing a laparotomy, but before doing so another simple enema was given and this brought away a large quantity of feces and flatus, affording great relief and reducing the abdomen to its ordinary size. During the evening the distention reappeared. Soap-and-water injections were repeated and a mixture of sulphate of magnesium and bicarbonate of sodium was given frequently. It then occurred to me that we had to deal with a case of pancreatitis which had caused the symptoms simulating intestinal obstruction. This diagnosis explained the epigastric pain, the sudden onset and marked collapse, the very rapid pulse, and the previous attacks of celiac pain. The temperature rose on the 31st and with occasional remissions it remained two or three degrees above normal for ten days. The abdomen remained distended and there were fullness and tenderness in the epigastrium and left hypochondrium. The pulse remained abnormally rapid, ranging from 160 down to 100, and the respirations from 30 to 22. The urine was increased in quantity, the daily amount averaging nearly five pints. On November 5th the urine was found to contain sugar, and on quantitative analysis each ounce contained 8.75 grains. The glycosuria may have been present before the onset of the attack.

Gradual improvement occurred in the condition of the patient, but there remained considerble circumscribed resistance, giving the sensation of a swelling in the region of the pancreas and suggesting an effusion into the lesser peritoneal cavity. Acting on this supposition I proposed an exploratory operation, and on November 17th I opened the abdomen by an incision in the left linea semilunaris and found that the omentum and mesentery contained a large quantity of fat which felt unusually hard. The pancreas felt enlarged but there was no effusion into the lesser cavity of the peritoneum. Numerous small white spots of fat necrosis were seen scattered over the mesentery and omentum in the neighborhood of the pancreas. The gall-bladder contained a large

calculus. I decided to remove this and to drain the gall-bladder, thinking that the presence of a stone might keep up a condition of catarrh in the bile-passages, which might spread to the pancreas. The first incision was closed and a second one was made over the gall-bladder, which was opened, and a stone was removed weighing two hundred and seventy-five grains and measuring one and a half inches in length by one and a quarter inches in width. The fluid in the gall-bladder consisted of mucus stained with blood and bile, and the lining of the gall-bladder was much injected. The gall-bladder was sewn to the cut edges of the peritoneum and a tube was inserted. The wound healed well, the tube being left out on the 30th, and the patient was able to walk about his room on December 9th. The pulse gradually became slower, but at the end of December it was still over 90. On December 28th the urine contained four and a half grains of sugar per ounce. The patient was quite free from pain, was taking ordinary food, and was doing a fair amount of work. On March 1, 1902, the specific gravity of the urine was 101.7 and the amount of sugar was four and a half grains per ounce. On May 17th the specific gravity was 102.7 and the urine was free from sugar.

It is only in recent text-books that any description of acute pancreatitis can be found. It may, and probably does, occur more often than we are aware of, but the difficulty of making a correct diagnosis is great, and most of the cases recorded have only been diagnosed in the post-mortem room. The varieties of pancreatitis described by Fitz[1] and by Osler[2] are: (1) hemorrhagic, (2) gangrenous, and (3) suppurative. The case in question certainly was neither suppurative nor gangrenous, and there was no evidence that it was hemorrhagic. It appears to have been a simple infective pancreatitis.

Most cases occur in fat males beyond middle life, with a history of recurrent attacks of pain in the epigastrium (so-called "celiac neuralgia") and possibly of gastro-duodenal catarrh. There may be a history of abdominal injury. The symptoms are the sudden onset of colicky pain in the epigastrium, with nausea, vomiting, hiccough, and collapse. Shivering may occur, especially when suppuration sets in. The temperature is subnormal at first but rises in a day or two above normal. The pulse is very rapid and weak. The upper abdomen becomes swollen and there is increased resistance over the pancreas. Constipation is

[1] Clifford Allbritt's System of Medicine, Vol. iv, p. 262.

[2] Principles and Practice of Medicine, fourth edition, p. 589.

usual. Later signs of localized peritonitis appear, and possibly those of suppuration. The symptoms suggest intestinal obstruction or perforation of the stomach or duodenum. Death frequently occurs in from two to four days. Post-mortem the pancreas is found to be enlarged with hemorrhages into its substance, and possibly patches of gangrene or necrosis. The lesser peritoneal cavity contains blood-stained fluid or pus. Fat necrosis is commonly found in these cases, and when seen is absolutely diagnostic of pancreatic disease. Small yellowish-white areas are found in the interlobular pancreatic tissue and in the mesentery, omentum, and abdominal fatty tissue generally.

Let us now consider how the case related fits in with these symptoms of pancreatitis. The patient was a fat male, aged sixty years, who had had attacks of epigastric pain extending over a period of seven years. The onset of the last attack was sudden, and the pain was in the epigastrium. There were nausea, vomiting, hiccough, and collapse. The temperature at first was subnormal but in the course of two days it rose two or three degrees above normal. The pulse was very rapid (160). The whole abdomen became enormously swollen and suggested intestinal obstruction. This was relieved by enemata and aperients, but quickly reappeared. Later, as the abdominal swelling subsided, there was increased resistance over the pancreas, giving the impression of effusion into the lesser peritoneal cavity. Then at the operation the fat necrosis was seen and a gall-stone was removed.

This raises a most interesting point, and that is the association of cholelithiasis and pancreatitis. Opie discusses this in a most interesting paper in the American Journal of the Medical Sciences for January, 1901. According to Opie, Körte notes that "diseases of the bile-passages, especially cholelithiasis, are frequently associated with lesions of the pancreas, and thinks that inflammation can extend from the bile-ducts to the gland." Osler thinks that "catarrhal inflammation may spread from the gall-passages to the pancreatic duct and cause obstruction of secretion and its consequences." He as well as Lancereaux states "that a gall-stone lodged in the common bile-duct at the diverticulum of Vater may occlude the pancreatic duct and favor the penetration of germs into the pancreas." In my case I do not suggest that the stone blocked the pancreatic duct, as it would at the same time have blocked the common bile-duct and have caused jaundice, of which there was never a sign. What I do suggest and believe is that the stone in the gall-bladder was accompanied by a state of inflamma-

tion of the bile-passages, and that some infection spread along the ducts of the pancreas to the gland itself.

With regard to fat necrosis, this condition was first described by Balser in 1882. The fat in the immediate neighborhood of the pancreas is studded with opaque white areas of variable size. The fat cells in these areas are necrotic. The necrosis is associated with the splitting of the contained fat into its fatty acid and glycerine. The former unites with calcium salts and remains; the glycerine is absorbed. The cause is the fat-splitting ferment of the pancreatic juice. Opie ligated the pancreatic ducts in cats and caused very widespread fat necrosis. He relates eight cases in which a stone had lodged in the common bile-duct near its orifice and could have compressed the pancreatic duct. In seven of these cases fat necrosis was present. In the eighth no mention is made of its occurrence. He also collected, including these eight cases, thirty-two cases in which pancreatic lesions and fat necrosis were associated with gall-stones. All these cases appear to have been fatal.

Another feature of interest in the above case was the presence of glycosuria, which probably was of pancreatic origin. Mr. A. W. Mayo Robson, in an address on pancreatitis delivered before the American Surgical Association, says that in his experience glycosuria is a very rare phenomenon in pancreatic disease, and in fact only occurs when there is great destruction of pancreatic tissues, as in extensive cirrhosis or in extensive malignant disease. Those who wish to obtain further information on the subject of pancreatitis associated with gall-stones can not do better than to study Mr. Mayo Robson's address[1] and a paper by Mr. H. Gilbert Barling.[2]

[1] Brit. Med. Jour., Vol. i, 1901, p. 1129. [2] Ibid. Vol. ii, 1900, p. 1766.

SOME CASES OF MALARIA ACCOMPANIED BY ACUTE ABDOMINAL SYMPTOMS.*

BY JAMES M. JACKSON, M. D., BOSTON.

I have asked permission to report a few cases of malaria because they seemed to me very remarkable, in which the chief symptom has been abdominal pain of such intensity as to warrant the diagnosis of peritonitis or appendicitis. It is not uncommon to have some abdominal pain at time of the chill, but it is certainly very unusual to have severe cramps in the abdomen preceding, as in one case, for three weeks, the onset of the chill.

The first case is that of Nellie C., age thirty, married, living in Somerville. Always well, and no history of malaria previous to present attack.

Present illness.—Three weeks ago suddenly taken ill with diarrhea, steady pain, attended with severe cramps in lower abdomen, and not localized on either side. For first twenty-four hours vomited continuously, but since then has only vomited a few times. Cough with whitish expectoration for past week. For past three days symptoms have been much worse, the pain in abdomen very severe and accompanied by hard cramps. Had a chill day before yesterday and one to-day. Tenderness over lower abdomen, perhaps more marked on left than right. No distention of abdomen and walls not tense. By vagina nothing abnormal made out except marked tenderness in vault, particularly on the left. Spleen not to be felt and liver to be felt one finger-breadth below margin of ribs.

Patient was sent to hospital by Dr. H. A. Lothrop, for some obscure abdominal trouble, and Dr. F. B. Harrington summoned. Preparations were made for operation, but in the meantime the blood had been looked at, as a matter of routine. Plasmodiæ were found and the case was transferred to the medical side, where, under quinine, all symptoms, even cough, disappeared, and she was discharged well in two weeks.

This is a very unusual case, I think, and shows the advantage of a very careful examination, especially in cases where there is even the least doubt about the diagnosis. The diarrhea, pain, and cramps in the lower abdomen, the vomiting lasting over a period of three weeks, followed by two chills and a collapsed condition, certainly point to a

*Read before the Clinical Section of the Suffolk District Medical Society, April 16, 1902. Reported in Boston Medical and Surgical Journal.

severe abdominal disorder of some sort. The diagnosis of appendicitis or a septic peritonitis was certainly warranted. Of course, on examination, only general tenderness was made out, and no localized tumor was felt. Moreover, there was no rigidity of the abdominal wall, which one would as a rule expect with a peritoneal process, but how often it happens in a septic peritonitis that no rigidity or tenderness in the abdomen is felt?

Dr. Lothrop has kindly given me a brief statement of the case as he saw it on the morning of entrance to the hospital: When called to case he found patient in high fever, cyanotic, perspiring profusely, pulse rapid and very weak. Patient had been vomiting all day. Whole abdomen was distended and tense, with tenderness especially marked in the right iliac fossa. Patient appeared to have a mortal sickness. Dr. Lothrop's diagnosis at the time was appendicitis, perforation, and general peritonitis. He saw the case later in the day, after admission to hospital. By that time the condition had improved and the abdominal symptoms had almost disappeared, so that he immediately retracted his diagnosis, and the finding of the plasmodiæ settled the question at once.

The second case is likewise remarkable in that the patient was brought to the accident room as an emergency, with a diagnosis of acute peritonitis. An abstract of the history is as follows:

Sophia H., age twenty-four, married; born in Norway, resident of Arlington.

Past history.—Always well. No previous history of malaria. No disorder of catamenia.

Present illness.—For three weeks has been feeling poorly. Ten days ago she thinks she caught cold, and complained of general malaise, headache, backache, chilly sensation, and vomited several times. Grew worse steadily, and went to bed five days ago, complaining chiefly of great prostration, vomiting, and severe general abdominal pains. Two days ago tried to walk, when she was seized with vomiting and increase of abdominal pain. Went back to bed, and for the first time had a chill. Bowels were constipated and patient unable to sleep. She was brought to the accident room as an emergency and the surgeon sent for.

Physical examination.—Well developed and nourished. Face pale, herpes on lip; tongue moist, pale and clean; pulse rapid, small volume

and weak; lungs normal. Heart: Slight systolic murmur at apex, otherwise normal. Abdomen not distended, not tender, covered with eruption resembling acne. No rose spots; liver normal in size. Spleen to be felt on deep inspiration. The history of general abdominal pain, vomiting, great prostration and chill, and the appearance of the patient at the time, made the attending surgeon feel that this was probably a case of septic peritonitis, but at the same time the size of the spleen made it seem advisable to wait until the blood could be looked at. Examination of fresh smears showed many full-grown plasmodia of tertian type.

Patient was transferred to medical side and recovered shortly under quinine.

The third case, Mrs. N., was admitted to hospital as an emergency for operation. Diagnosis made outside was "general peritonitis." Patient lives in Boston.

Previous History.—Always well, except for malaria seven years ago, while living in Hyde Park, and an occasional slight attack of rheumatism. Six years ago was operated on for fissure in ano. Three weeks ago began to feel weak and "miserable," as she expressed it. For past ten days headache and vomiting. Six days ago went to bed on account of great weakness, frontal headache, vomiting, pain in epigastrium, and fever. Four days ago pain in epigastrium became very severe and lasted all day. Abdomen became very tender, especially in the upper part. Toward evening pain became intense, requiring morphine. At 9 p.m. patient had chill (this being the first), high fever, sweating, and pain in abdomen became even more severe and general in character. Yesterday, that is, the day before entrance to the hospital, was more comfortable, but could retain no food, and pain in abdomen continued as before. Toward evening she became delirious and complained always of pain in the abdomen, more marked above the umbilicus; bowels constipated. This morning patient seemed very low, dull and stupid, chill at 10.30, temperature rising to 105°, pulse 132, respiration 32 at 1.30 p.m., when patient was transferred in great haste to the hospital.

The physical examination at time of entrance was as follows: Dark complexion, yellowish tinge to sclera; well nourished; pupils react; tongue slightly coated; speaks little; evidently in pain; knees drawn up; pulse regular, fair volume; lungs normal. Heart: Apex sound loudest in fifth space, one and one half inches within nipple; no mur-

murs; no enlargement; spleen enlarged by percussion, edge to be felt on deep inspiration; tenderness in epigastrium on pressure; no dullness; no localized spots of tenderness in lower abdomen; no rose spots; patella and cutaneous reflexes present. Plasmodia malariæ found in blood in very small numbers (two organisms in three slides) at 4 p.m.; white count, 8,900. Patient was transferred to medical side, and under quinine the symptoms almost entirely disappeared in the next two days.

Here, again, a case of malaria was sent to the accident room, as an emergency, by a very competent and experienced physician, with a diagnosis of peritonitis of unknown origin. The patient was certainly very ill, and the surgeon would have been justified in exploring the abdomen. That the white count showed but 8,900 did not argue against peritonitis, but this with the enlargement of spleen led to a more careful examination of the blood and to the finding of plasmodia malariæ.

The following case is more complicated, as a definite lesion was found which would explain the presence of pain, but there are many points in common with the other cases, and the question arises whether the malarial organisms ever take any part in lighting up an old inflammation.

Minnie S., age 26, married; born in Massachusetts and lives in Brighton.

Previous history.—Can recall no illness in childhood. Five years ago, severe sunstroke, unconscious for seven hours. Since then has suffered from headache about half of the time. Two years ago had prolapse of womb following confinement. From time of last confinement (ten months ago) has had more or less pain in right iliac and pelvic regions.

Present illness.—On June 17, 18, 20, 22, and July 4 had chills followed by fever, which ceased after considerable quinine was taken. Then perfectly well till July 15, when she woke with cramps in right lower abdomen. Nausea without vomiting; no chills, no fever, no headache. July 16 could not stand on account of pain in right iliac region. Intense frontal headache and pain in eyes; no chills, no vomiting. Required morphine for pain. July 17: Pain in lower abdomen worse. Very weak and exhausted, fainted several times; frontal headache; chill at 2 p.m., lasting thirty minutes, followed by sweating and slight fever; vomited soon after. Passed a comfortable night. July 18: Soreness in right iliac region but no sharp pain. No chill, headache or

fever. July 19: Was sent to the hospital with diagnosis of pelvic peritonitis. Physical examination of abdomen showed spleen enlarged; edge felt. Tenderness and resistance in right iliac region.

Vaginal examination.—Cervix very large, not soft; large laceration, not tender. Distinct resistance on right side, with tenderness, giving the impression of a cellulitis. Plasmodia found in blood at 6.30 p.m. All fully developed pigmented forms in active motion. 10.30 p.m.: Only hyaline bodies and young forms seen, with little pigment. Whites 5,100.

In eight days the patient was well and only a slight resistance on the right of the uterus was to be felt. The patient had undoubtedly a pelvic peritonitis, but whether this was only a coincidence or whether the malarial organism had any part in starting it up is of course a question. All symptoms disappeared shortly under quinine, and probably rest in bed was all that was needed to relieve the pelvic condition.

The fifth case came to the Out-Patient Department with a well-marked malaria. He volunteered the following statement, which is rather interesting:

Howard C., age 25, married; conductor; residence, Cambridge. Has been under treatment for malaria, but of late the chills have been attended with great pain in the abdomen, not localized, but general. Pain persists for several hours after the chill ceases, and always leaves him with considerable tenderness in the epigastrium. No vomiting; bowels rather constipated.

The last case, that of Benjamin E., was attacked with severe pain in head three days before entrance. Next day seized with severe cramps in abdomen, which became gradually worse till just before entrance, when he had an attack of vomiting, followed by chill and fever. The symptoms in the case were not as severe as the others, and in light of past experience the blood was carefully looked at before summoning the surgeon, and the cause of the trouble was found.

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TYPHOID FEVER.

That our water supply is the greatest source of the typhoid fever germ there can be no question, and with that understanding it would seem that every individual should consider it paramount to have pure drinking water; but with the combined efforts of the medical and lay press the public seems to be totally deaf to all warnings, and in spite of the most convincing facts will continue to drink polluted water. Louisville is preparing in the near future to furnish her inhabitants with filtered water—that is, water that will be free from mud, but just how free it will be from disease-breeding germs remains to be seen. The absence of the mud will at least make us feel like we are drinking pure water, and, by the way, that will be one of the strongest arguments that can be brought forward to induce the mass of lay people to drink the river water.

We have called the city fathers' attention time and again to the fact that the well water of Louisville is notoriously bad, and our warnings are borne out by the large number of cases of typhoid fever that now exist in the city, many of these cases, in fact most of them, occurring among the poor that have to be cared for at the city's expense, hence it would be economy and above all a life-saving process to close up every well in the city and substitute a water-plug from which the river water may be obtained.

PROPRIETARY HEADACHE CURES.

There are an indefinite number of remedies sold by druggists everywhere all over the country for the cure of headache. The chief agent in all headache remedies is some powerful heart depressant, usually a coal-tar product, and more frequently than otherwise it is acetanilid. There should be some means of preventing the sale of these dangerous nostrums, as there should be a law to prevent the sale of carbolic acid without a prescription from a physician. We are familiar with a number of instances where valuable lives have been jeopardized by the use of these headache remedies, and doubtless many a poor fellow has found an untimely grave by the injudicious use of such agents.

Current Surgical and Medical Selections.

Cancer in India.—The subject of cancer in India is exciting some interest at the present time in connection with the scheme which has been launched in this country for the organized investigation of that and other allied forms of malignant disease. The Indian Medical Gazette for the month of May contains two excellent papers having a direct and special bearing on the subject. The first is by Captain W. J. Niblock, I. M. S., of the General Hospital, Madras, embodying the results of the experience obtained at that hospital, for which purpose the hospital registers for the past ten years have been carefully gone through. All cases of carcinoma, sarcoma, and rodent ulcer—using the term malignant disease as synonymous with that of cancer in its broader sense—which have been admitted into that institution have been extracted, tabulated, and analyzed. The other paper, by Dr. Ernest F. Neve, briefly summarizes the history and results of "A Decade of Tumor Surgery in the Kashmir Mission Hospital." While there are no published statistics showing the frequency of admissions for cancer in the various hospitals throughout India, together with the regions of the body affected, cancer seems to be in Madras, at any rate, by no means rarely met with, and the same may be said of Kashmir. In looking over the tables compiled from the Madras Hospital registers one of the first things to strike us is the enormous number of native patients admitted for carcinoma of the cheek and jaws—a fact which is stated, and apparently on strong grounds, to be accounted for by the habit prevalent among Hindus and Mahomedans of both sexes of the chewing of betel. In Dr. Neve's paper it is stated that the total number of tumors operated upon between the years 1890 and 1899 was 2,020, more than 50 per cent of these being malignant.—*London Lancet.*

Pathogenesis of Pernicious Anemia.—Syllaba (*Rospravy Ceskè Akadèmie*, IX, No. 22) has attempted to determine whether pernicious anemia consists in an increased destruction or deficient production of erythrocytes by an examination of the blood serum in five cases of this disease which he observed during a year. In the first case, which was associated with a marked jaundice, the serum was clear, red in color, and contained hemoglobin and bilirubin, while in the other four cases, with a less icteroid condition, the serum was golden yellow in color, deeper than the normal color of the serum, contained no hemoglobin, but bilirubin was present in varying amounts. The hemoglobinemia is evidence that there is an increased destruction of red-blood corpuscles, and in the first case this destruction was much more intense than in the other four cases. The author is therefore of the opinion that pernicious hemolysis is the essential characteristic of pernicious anemia, which is brought about by some form of poison which is up to the present time hypothetical. This poison finds its way into the blood-current either from the gastro-intestinal canal from a diseased organ, or exceptionally from the lungs or skin.—*Maryland Journal of Medicine.*

Failure of X-ray in Hodgkin's Disease.—The brilliant results obtained from use of X-radiance in superficial cancer are not duplicated in Hodgkin's disease. In a recent report Dr. Francis H. Williams reports concerning his most hopeful case (out of three in which he has used the rays) that, although suprisingly rapid improvement was observed for a time, at the end of six months the glands have enlarged again, and the patient's general condition is no better than it was at first, in spite of the fact that the treatment has been continued.

Special Notices.

Notwithstanding the large number of Hypophosphites on the market, it is quite difficult to obtain a uniform and reliable syrup. "Robinson's" is a highly elegant preparation, and possesses an advantage over some others in that it holds the various salts, including iron, quinine, and strychnine, etc., in perfect solution, and is not liable to the formation of fungous growths. (See third cover page.)

Owing to the great increase in the substitution of inferior and harmful remedies for those of well-known and proven value, we advise purchasers, for their protection, to insist on having Celerina, and not to accept anything that is offered as "just as good," or cheaper, which unscrupulous druggists continue to offer in order to make a few cents more. You know what you want, insist on having it; if he has not got it, go somewhere else, or get him to order it for you. We think this will explain to you the necessity of getting the genuine article, in order to produce satisfactory results, for in some cases of failure it has been owing to the substitution of an inferior article, thus not only doing you no good, but even imperiling your life. But as this hydra-headed monster, like Banquo's ghost, "will not down" as long as dishonest men exist, the best way to check it is to purchase in original packages, and be sure that you get it in that form.

Coca as a Depurative of the Blood.—The problems that confront the practitioner during the heated months are usually the outgrowth of previous unsoundness of health which has settled into a condition more or less chronic, or those more acute ills engendered through overindulgence in such bounties as are now lavishly displayed. In either of these broad classes, when physical strength and mental power is at a low ebb, there is no one remedy better adapted than Coca. It is an adjuvant to all known forms of treatment. The knowledge of this drug has come to the busy scientific world through its efficacious use in allied conditions requiring the most urgent support to maintain life. The Andean traveler toiling up rugged steeps through bleak and uninhabitable regions, at an altitude where sheer existence is sustained with difficulty, is supported in his efforts through the use of Coca, the leaves of which he chews unceasingly. The seemingly marvelous action of these apparently simple leaves has only recently been learned through a study of the physiological properties of their constituents.

Coca primarily acts as a depurative of the blood, and as it is well known, when this nutrient stream is freed from the products of tissue waste—and not until then—the muscular and nervous systems are in a condition where physiological repair can be effected. Whether the exhaustion be of a temporary nature, as that induced through excessive physical exertion, or be due to the prolonged presence of disease, the products of combustion in the human machine—the ashes and the clinkers—must first be thrown out in order that the entire system shall work more effectively. Coca, it is known, will bring about this excreative action in a phenomenal way, and when the volative principles of this drug are carefully preserved through skilled manipulation—such as in the famous Vin Mariani—there is presented a depurifier and supporter par excellence.

To Prevent Infection.—A practical and helpful series of rules for the sanitary management of contagious and infectious diseases has been prepared by The Palisade Manufacturing Company of Yonkers, and issued in pad form with cover.

It is intended that when called to a contagious case the physician shall sign and hand to the attendant one of these printed sheets of "Precautions to be Observed by Patient, Family and Attendants." This series of rules, couched in plain, everyday English, has been carefully prepared and the information given is accurate and up-to-date. The delivery of such a signed code of instructions not only impresses the family favorably, but also relieves the physician of all responsibility should any of the necessary precautions be omitted. The advertising of Borolyptol is so arranged that, if the physician desires, he can detach all refereuce to the preparation before handing the directions to the family.

One of these pads (thirty-two sheets) will be mailed to any physician who may apply for same.

An Old Friend's Endorsement.—In the "Reference Book of Practical Therapeutics" compiled by our old friend, Frank P. Foster, A. M., M. D., editor of The New York Medical Journal, we note the following: "Antikamnia Tablets have been much used and with very favorable results in neuralgia, influenza and various nervous disorders. As an analgesic they are characterized by promptness of action, with the advantage also of being free from any depressing effect on the heart." We are pleased at this expression of faith in the efficacy, promptness and absence of untoward after-effects of this most excellent remedy. We feel that the statement applies not only to Antikamnia Tablets, but to any of the tablet specialties offered to the medical profession by The Antikamnia Chemical Company, of St. Louis, Mo. Physicians desiring samples should write to this Company for them and they will be forwarded promptly, particularly if they mention American Practitioner and News.

THE

AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

SARCOMA, WITH REPORT OF A CASE.

BY A. DAVID WILLMOTH, M. D.

Lecturer on Surgery and Instructor in Clinical Laboratory of Surgery, Kentucky School of Medicine; Visiting Surgeon, Louisville City Hospital; Secretary of Muldraugh Hill Society, and Member of Kentucky State Medical Society and Hardin County Life Insurance Examiners Association.

The unquestioned fact that cancer has been steadily and alarmingly on the increase in all civilized countries of the globe for the last twenty-five years justifies the great amount of attention paid it by modern pathologists and clinicians. A mere reference to the many contributions would require more time than could be allowed any one paper, even to review the past year's literature. Many of them are of real value, and I shall not hesitate to draw on them largely.

Naturally, some of these investigators, in fact most of them, have been working in the field of etiology of the question. The number of theories advocated is the best evidence that the problem remains unsolved, still much good has been done, and if the work is pursued with as much earnestness in the future as has been done in the past, I believe that ere long we shall speak as confidently of the causation of cancer as we now speak of tuberculosis, diphtheria, and many others.

As early as 1887 Scheurlen announced positively that he had discovered the cancer microbe. In 1893 Armand Ruffer insisted that the disease was due to a parasitic protozoa; in fact, a long journey has been traveled from the tomato, which has been considered a predisposing cause, down to the germ theory, which is the latest, and the stopping places have been many.

In the first place, who are the most susceptible? It is asserted by the highest authorities that countries whose inhabitants show the highest state of culture and civilization furnish the greatest number of cancer cases. Dr. Livingstone, in his work on "Travels in South Africa," says the natives never have cancer, but often have benign tumors, such as fatty. Again, the report of the Registrar-General of Great Britain shows a steady increase in the number of deaths from cancer since 1864, so that in 1890 there were nearly double the number of cases that there were twenty-five years before, and our own Prof. Roswell Park reports the number of deaths from cancer double in 1895 what they were in 1885 in New York State Board of Health returns, and makes the startling statement that if for the next ten years the present death rates are maintained, in 1909 there will be more deaths in New York from cancer than from typhoid, tubercular trouble, and smallpox combined.

Females are far more liable than males, being nearly double the number of cases, and according to Herbert Snow, who has placed the medical world under obligations to him for his work on cancer, in nearly half of the females suffering from cancer, it is of uterine or mammary variety, due, of course, to the tendency of those organs to undergo malignant degeneration, which process is not strange when we remember that they are in a constant state of irritation from puberty up until say forty years, when physiological atrophy begins. So after more than twenty years of overstimulation, when they begin the process of devolution they do so rapidly and oftentimes not in order, and the epithelial cells, which are so inclined to run wild as it were after forty, overwhelm and subdue the already enfeebled normal cell elements, and is it strange that epithelioma should be found so often in women after childbirth, when we know that cicatricial tissue everywhere invites malignancy, and that many cases of this kind owe their existence to a badly lacerated cervix, followed by endometritis? This is accounted for by the old theory, which is no doubt correct, that traumatism and long-continued irritation are predisposing factors, traumatism heading the list in the class of cases one of which we will endeavor to report at the close of this paper.

Malignant troubles of the external genital organs of both sexes are nearly on a par, epithelioma, carcinoma, and sarcoma being the ones oftenest found, and coming in the order named, sarcoma being oftenest found in young people and closely imitating in its structure normal

embryonic or immature connective tissue. While the different forms of sarcoma vary in their structure and clinical course, they all present the following characteristics: The cells contain one or more nuclei, the masses of protoplasm of which they are formed not being surrounded by any distinct cell wall, and the cell body is large as compared to the nucleus. The cells are in constant relation to the stroma, *i. e.*, the intercellular cement, which corresponds to stroma, surrounds each cell, varies in amount, and has no definite arrangement, no alveoli being formed as in carcinoma.

The blood-vessels ramify among the cells, not, as in the carcinoma, running in the stroma, because this structure is absent and the wall very thin; the blood-vessels seem to be only mere spaces bounded by the cells of the growth. This explains why hemorrhage is frequent in the growth itself, and why dissemination takes place almost always by the blood-vessels and not by the lymphatics as in carcinoma, and also explains why the lungs are the first to take on secondary deposits. Sarcoma is exceedingly apt to recur, owing to the infiltration of tissue, part of which is not removed.

Involvement of the lymphatic system is rare, except when the tonsils or testicles are involved, because of the absence of this system in the growth. Again we find the growth of sarcoma is not steady, but spasmodic—now fast, now slow—and attacks organs or tissues which are developing and are in active function, hence we find it a disease of youth or early middle life.

Sarcomas do not yield a milky juice on scraping a freshly cut section like carcinomas do, and they often result from an injury, such as a blow or fracture. The round-celled sarcoma so closely resembles granulative tissue in the major part of the growth that even the microscope can not differentiate, as it exhibits every step in connective-tissue formation from tissue to bone, but on searching at the growing margin the sarcomatous elements are always present, and its malignancy is shown by invasion of surrounding tissue, and its dissemination through internal organs is in no way lessened.

The clinical course of sarcomatous growths are partly dependent on their structure and partly on the organ they attack. For example, the spindle-celled variety, which is the commonest form attacking the breast, occurs most often between thirty and forty, is encapsulated, freely movable, hard and nodular, grows rapidly, develops cyst, and some may fluctuate. Infiltration takes place, and finally other organs

are involved and death ensues, while the giant-celled comes on after forty as a rule, develops very slowly, most often found in lower jaw or end of femur, head of tibia, etc.; may be years in getting the size of a walnut.

The diagnosis can not, of course, be positively made without the microscope, but the following aids us much where no microscope can be had: Cysts are of frequent occurrence, especially when disease is in bone, breast, or testicle; rapidity of the growth; liability to ulceration; skin may be reddened and hot, increasing pain, etc. The symptoms above spoken of can be easily accounted for. The cyst being due either to extravasation of blood, which produces spurious cyst, or to myxomatous changes, which will produce liquefaction and form a cavity often as large as the fist. The ulcerative changes seen are due simply to expression of growth at a rate relatively faster than the possibilities of nutrition permit, and gangrene is to be regarded as a failure to supply sufficient blood. It may also mean infection, of which it is, indeed, a usual expression.

The prognosis varies with site of disease. Those of lower jaw may be amenable to treatment by removal. Those of tonsils and lymphatics destroy life quickly, and it has been often noticed that the smaller the cell and the more embryonic the more malignant is the tumor.

The treatment may be summed up in a few words, as in all neoplasms: removal by the knife offers the most where this can be done. If the disease is in shaft of long bone, disarticulation at joint above may effect a cure. Where the growth can not be safely operated on, or where entire removal is impossible, then we have left to us the injection with toxin of erysipelas and prodigiosus, or more commonly called Coley fluid, also the sheep serum as used by Emmerich and Scholl, or the Alexander treatment as used at Boston, and last we may be able to do some good with X-rays, either on the growth before operation or probably, which is best, to apply it to the scar. After every vestige has been removed with the knife that is possible, however, this line of treatment by X-ray has not given any great amount of good results.

The following case came under my care last January, two years ago: H. G., twenty-seven years old, complained of enlargement of right testicle to twice the normal size, as testicle was always very small. Family history good, no specific history in patient, he was in fairly good health, with exception of a loss of a few pounds in weight. Present trouble dated back one year, when he had received an injury to the

organ by being thrown on pommel of saddle, causing intense pain and nausea, followed in a few hours by swelling of the testicle, which subsided in about three weeks. Nothing more was thought of it until four or five months before I saw him, when the testicle became painful and enlarged; pain slight, enlargement soon went down, but not to normal size, to be followed in a week or two by the same symptoms, each time testicle remaining somewhat larger than the previous time. Pain more severe, swelled testicle, uniformly firm, and causing pain by weight. Suspensory applied and all the usual forms of local treatment were used without success. Symptoms grew worse, and as malignancy was suspected from the history and character of the growth, an operation was advised as the only treatment offering relief. On the 15th of April, following the time I first saw him, after thorough preparation an incision was made from external abdominal ring well down on to the tumor. There was some fluid found in tunica vaginalis, tissues infiltrated, enlargement of cord, etc. A diagnosis of possible sarcoma was made, cord ligated close up to ring, and all vestige of disease that could be found was removed. The wound was closed by two tiers of catgut sutures, with drain at lower angle for a few hours. Patient made an uninterrupted recovery, and up to the present time he shows no return of the disease. The microscopical examination of the tumor showed it to be a spindle-celled sarcoma, such as is most often found in periosteum and secreting glands such as the ovary, testes, parotid, kidney, and mammary gland.

LOUISVILLE.

OBSERVATIONS ON THE NATURE AND TREATMENT OF PERNICIOUS ANEMIA.*

BY ALEXANDER M'PHEDRAN, M. D.

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Many causes and conditions have been adduced to account for the occurrence of pernicious anemia, but none of them is satisfactory—nothing definite is known as to the actual cause. This unknown factor is generally believed to be a toxin ; on this theory only can the phenomena be accounted for. Among the English-speaking profession generally the toxin is looked upon as of gastro-intestinal origin and that it acts on the blood of the portal system especially, causing rapid hemolysis, and that the other effects produced are secondary, developing in the course of the disease. Many German physicians, on the other hand, refer the disease to a toxin affecting hemogenesis, as shown by the abundance of myeloblasts in the bone-marrow and in the blood, indicating a reversion to the embryonal type. It is probable that both views are in part correct ; that not only blood destruction but blood formation has been affected by a common toxemia resulting in the genesis of abnormal corpuscles and the rapid destruction of the less resistant ones. The blood formation is atypical, and therefore to be attributed to pathological irritation rather than to excessive physiological stimulation. The other changes met with, especially those in the spinal cord and peripheral nerves, are probably produced by the action of the same irritant, rather than as the result of the protracted anemia. The irregular course of the disease, with its remissions and exacerbations, its irregular fever, the frequent disturbance of the mental condition, and the occurrence from time to time of vomiting and diarrhea, all indicate a common toxic cause.

The fact that the general condition does not bear a definite relationship to the blood state goes to show that there is something else than the poverty in corpuscles on which it depends. This is well illustrated by the contrast between the condition of a miller who was able to do without difficulty all but the heaviest work of his mill, and yet his blood had only one million red corpuscles per cubic millimeter, and that of a physician with over four million corpuscles, whose case is given in detail under the head of treatment. In the case of a member of the Canadian House of Commons during the past year there have never been more than three

* A paper read at the meeting of the Association of American Physicians, Washington, May 1, 1901. Reported in the London Lancet.

million five hundred thousand red corpuscles per cubic millimeter, and yet he has not only regularly and with marked ability attended to his duties in the House, but has also conducted a most vigorous election campaign without either exhaustion or detriment. It is to be noted that in these, as in all cases during well-marked remissions, the color index is always near the normal, and that the corpuscles show less deformity and there are fewer nucleated ones among them.

That the condition is a toxemia is further indicated by the early occurrence of marked weakness. This, in most cases, is the first symptom and it may be complained of a considerable time before the pallor is observed. It must therefore be independent of the anemia, to which, as already stated, it is not proportional. In twenty two cases observed during the last three years, with scarcely an exception, the first deviation from health noticed was the weakness ; pallor followed soon afterward. It is to be observed, also, that the early occurrence of weakness, before, as a rule, any disturbance of the digestive tract is noted, does not support the theory that the toxin is of gastro-enteric origin or that the digestion tract is the site of infection, but rather indicates that the changes in it are secondary to the toxemia. The disturbances of the stomach and bowels doubtless, however, increase the toxemia and therefore aggravate the condition.

The ground for the opinion that the toxin is of gastro-enteric origin is the constancy with which disease or disturbance of the function of the digestive tract occurs. Few, if any, cases are met with in which there is not at some time a history of diarrhea and vomiting. In my twenty-two cases diarrhea and vomiting occurred practically in all of them at some period of the disease, usually early, but sometimes later. The post-mortem conditions, however, found in the relatively few cases examined do not afford much support to the theory, as in most of them all that has been found is atrophy of the gastric mucosa. Atrophy, however, occurs in gastric carcinoma and many other conditions which have shown no signs of pernicious anemia, and then there is wanting evidence that the atrophy is not a late change in the disease. The only evidence of its early occurrence is the absence of free hydrochloric acid from the gastric secretion, but free hydrochloric acid is temporarily, and occasionally permanently, absent in many other conditions. During the remissions in pernicious anemia the appetite and digestion are often quite vigorous and a full diet may be as well disposed of as in health. At such times there is every evidence of a secretion of hydrochloric acid. Even in

malignant pyloric obstruction hydrochloric acid may be restored to the secretion after the condition has been relieved by gastro-enterostomy.

Of late much importance has been attached to the probability of infection of the stomach by secretion from diseased gums around decayed teeth.[1] There is no doubt that such unhealthy conditions of the mouth may cause gastric catarrh, but that is far from proving it, even indirectly, to be a cause of pernicious anemia. It is a question whether decayed teeth and diseased gums are found to exist in pernicious anemia in a greater proportion of cases than in other chronic exhausting diseases. There are such a vast army of people whose teeth are decayed and whose gums are unhealthy that it would require a marked connection between the condition of the mouth and any constitutional disease to establish a relationship of cause and effect even in a remote degree. In my twenty-two cases I have notes of the condition of the mouth in seventeen: One or more teeth were carious in ten of these, but nearly all of them were too well cared for to be a possible source of infection of the stomach. In only four of these cases were the gums unhealthy, three of them being only slightly affected and the fourth only fairly severely. In none was there a purulent secretion. It is further to be observed that these cases were not more affected by stomatitis or gastro-intestinal disturbances than were those whose teeth and gums were perfectly healthy.

One case at present showing very grave symptoms of pernicious anemia was under treatment two years for dilatation and prolapse of the stomach with marked disturbance of its function. The patient was then quite thin and anemic, but the blood did not present the characters of pernicious anemia, and she made a very good recovery. Her present illness began during the past winter. There was a history of pernicious anemia in the family of two of my cases. One of them, a young man, whose death is just reported, had a brother who died from the same disease about four years ago. The history was typical, so that there can be no doubt as to the diagnosis. The other case is that of a lady about seventy years old. She had been ailing for nearly two years and presented the characteristic symptoms in a marked degree. Two of her brothers died a few years ago from a disease with similar symptoms and history.

Symptoms of the disease of the nervous system occurred in nine of the twenty-two cases. In most of them there were only slight feelings of numbness in the extremities, the hands chiefly. In the case of a physician to whom I shall presently refer, not only the numbness, but ataxia,

[1] William Hunter: The Lancet, January 27, 1900, p. 221.

was quite marked, and the mind was not quite vigorous and clear even during his remissions, in some of which he was almost well. In the case of a lady, aged sixty-eight years, there was a sensation of extreme coldness in the hands that was distressingly painful at times. In her case numbness was also marked. Severe neuralgia of the head in all parts, but usually affecting one side more than the other, was the form which the nerve systems took in a young woman. The pain could scarcely be relieved until a remission of all the symptoms occurred, when she recovered fair health for a time; a relapse followed and terminated fatally six months later. Of the twenty-two cases sixteen were males, an unusually large proportion. They were from all walks in life, but none were subject to undue privation or burdened with excessive work or "carking" care. In no case was any apparent cause evident.

In estimating the value of the treatment in any disease it is necessary to take due account of its natural course. This is especially true of pernicious anemia, the course of which is subject to such sudden and extreme changes. There are few diseases in which more marked remissions occur. It is not unusual for patients almost moribund to be about in a few days and to resume work in a few weeks. This was the history in the case of a man who had been ailing for some months, and in April, 1900, was so prostrate that he could not be roused; blood-stained fluid flowed from his mouth, saturating his pillow. Yet in a few days he was sitting up, and returned to his home within a week, a distance of one hundred miles. During the summer he considered himself well and worked at his trade as a stonemason. He relapsed in the autumn and spent the winter indoors with hopes of improving with the advent of the warm weather, but he grew worse rather suddenly and died in April, 1901. Another man, under my care at the same time, in his first attack two years before was so prostrate that his physician told him that he would not be able to return to his office for a year; but he was there in two weeks, and continued well, as he thought, for a year when he relapsed, failing steadily with the usual exacerbations and remissions, until he died six months later. Such cases as these show the inappropriateness of the name "progressive" pernicious anemia. The disease is *remittent*, not *progressive*. Many cases run a milder and more persistent course, but in these also remissions occur and from time to time give promise of recovery. As in the case of the member of the House of Commons already referred to, the recovery may be almost complete and remain unchanged for a year or more, but examination of the blood always shows some

characteristic deviations, and a relapse may be confidently expected sooner or later. This has been my experience with the twenty-two cases observed during the last three years. Of these fourteen patients have died, four are running the usual variable course, and the remaining four have not been heard from for some time.

Arsenic, since its introduction by Bramwell, has until recently been regarded as a specific in pernicious anemia. As the natural history of the disease has become better understood confidence in it has gradually lessened until now many regard it as of little value. The only case of complete recovery which I have had was apparently due to its action.[1] The case was that of a patient who in 1889 presented all the characters of pernicious anemia with acute symptoms. The red corpuscles were reduced to seven hundred and fifty thousand per cubic millimeter, and there was marked poikilocytosis with much variety in size. Histological examination of the blood was not then further made. He took arsenic very freely for three months, causing considerable peripheral neuritis. His recovery was complete and he has since remained well. In the light of my more recent experience I am inclined to doubt the diagnosis, although it is not apparent wherein the error lies. In none of my late cases has arsenic proved of any service. In many of them it soon caused gastric irritation and had to be discontinued.

The general acceptance of the theory of gastro-intestinal toxemia has led naturally to the use of various antiseptics. Of these bichloride of mercury has been most generally used, both locally as a mouth-wash as well as internally. My experience with it unfortunately has not been satisfactory; no tangible good has resulted from its use. The use of other antiseptics as salol, resorcin, creasote, bismuth salicylate, and bismuth naphtholate has been equally ineffective. Should this plan of treatment, after due trial, prove unavailing it will go far to show that the theory of the origin of the disease from a gastro-intestinal toxin is incorrect.

With a view of supplying the blood with an artificial serum and stimulating lymphagogue action and excretion of toxin by the kidney I have given normal saline subcutaneously in a few cases. I first gave it to an old man in the Toronto General Hospital who was so prostrate as to be almost unconscious. After the first injection of a pint he roused up and remained much better. A pint was given every second day and on the alternate days the same amount was given by the rectum. The subcuta-

[1] Philadelphia Medical News, 1890, p. 367.

neous injection was so painful that on recovering his normal mental state he declined to continue its use, and the saline enemata soon caused diarrhea and had therefore to be stopped. He improved very much and left the hospital in very fair condition, with over three million five hundred thousand corpuscles per cubic millimeter. He returned four months later in a relapse and died in a few days. In a few other cases improvement followed the subcutaneous saline, and in one there was apparently a recovery, but he may have relapsed, as he has not been heard of for some time. It is, unfortunately, too painful for most people to endure. The rectal administration should be as effective, but it can not be continued on account of the diarrhea.

If, as Rumpf[1] has lately pointed out, there is, in addition to the hydremic state of the blood, an excessive quantity of sodium chloride present, it would seem injudicious to add more water and chloride of sodium to blood already surcharged with these constituents. If, however, the solution stimulates the renal secretion its use may so increase elimination from the blood as more than to counterbalance the evil effects of the introduction of more chloride of sodium and water into the blood.

The use of various other sera is illustrated by the history of the case of the physician to whom I have already referred. He was fifty years of age and practiced in a neighboring city. Symptoms of weakness were noticed early in 1899 and pallor shortly afterward. His teeth and gums were healthy but he suffered much from stomatitis, especially when his stomach was disturbed, as it was frequently. He could take arsenic only for a few days, as it caused nausea and vomiting, and normal saline by the bowels set up diarrhea. Bichloride of mercury was used for some time, both locally for the mouth and internally for the general toxic condition without doing appreciable good. Bismuth salicylate and similar antiseptics were given from time to time for the diarrhea, which always recurred when the stomach was disturbed. His history was the usual one of mild exacerbations and remissions. Plain horse serum was then given subcutaneously in the hope of stimulating lymphatic action, but the only effect was to produce a severe urticaria. This was also the result of its use in three other cases. Then antidiphtheritic serum was used, two cubic centimeters being given every second day. It use in two previous cases had been followed by gratifying results, doubtless *post hoc* rather than *propter hoc*. The patients were both old men and one of them died

[1] Berliner Klinische Wochenschrift, No. 17, 1901. Abstracted in American Medicine, vol. i., No. 9.

in the following year from acute diarrhea, the other two years later from senility. In the physician's case the serum had no apparent effect, nor had it in three other cases in which it was subsequently used. During June antistreptococcic serum was used, five cubic centimeters being given every two or three days at first and later ten cubic centimeters ; in all one hundred and twenty-five cubic centimeters were used. During this time the temperature varied from 99.2° to 100.6° F. Some time after beginning the use of serum, after each injection a free secretion of saliva occurred which was sometimes blood-stained. No apparent benefit followed the use of the serum. The patient spent the summer of 1900 under most favorable conditions, living out of doors all day and sleeping in a tent at night. During the remissions the appetite was good and his diet was highly nutritious. By September he was considerably better, but still his blood only contained about three million five hundred thousand red corpuscles per cubic millimeter. In October, on my advice, he tried spermin (Poehl), ten cubic centimeters being given in divided doses extending over ten days. He soon began to improve, and during November his blood contained four million five hundred thousand corpuscles per cubic millimeter and the hemoglobin rose to eighty-five (Fleishl). He looked quite well and said he felt as well as ever ; the corpuscles, however, showed considerable inequality in size and a few nucleated ones could be found. He resumed his practice in a quiet way, but soon found himself unequal to the work. He became depressed ; his mental condition, which had been affected early in his illness and was not completely restored even at his periods of greatest improvement, now became so much disturbed that he became difficult to nurse. He was confined to bed although the blood showed only moderate deterioration, and in January, 1901, he grew suddenly worse and died comatose.

In more recent cases I have advised moderate purgation, with the object of removing infective material from the bowel. At the same time intestinal antiseptics have been given, and such general remedies as strychnine, arsenic, iron, bone-marrow, and the like. The results, however, have been no less disappointing than former experiences. Notwithstanding all the good work that has been done the cause and pathology of the disease are as yet quite unknown, and as to its effective treatment we are equally in the dark. No plan of management or treatment so far devised avails to cure the disease, or even in most cases, at least, to alter its erratic course. Before the recovery can be considered complete the blood on histological examination must be found quite normal. A restoration of

even the full complement of five million red corpuscles per cubic millimeter is not sufficient, as that may occur in a prolonged and marked remission. Not a few of the cures reported have doubtless been remissions of this kind.

THE EAR FROM A MEDICO-LEGAL STANDPOINT.*

BY W. SCHEPPEGRELL, A. M., M. D.

In a case of injury the surgeon has an important responsibility when he testifies as to the nature of the injury and the means and manner in which the injury was inflicted. The importance of making a thorough examination with a view of finding the exact cause is illustrated by the fact that we are sometimes called on to give legal evidence in a case in which the medico-legal aspect did not suggest itself at the time. In all cases of injury, therefore, it is not only necessary to make a critical examination, but it is also advisable to make notes for future reference, a method that I have practiced for several years.

In illustration of the importance of making such careful examinations and of not placing too much reliance in the testimony given by the patient, I will give the synopsis of a case which I reported at the time before the Société Française d'Otologie, de Laryngologie et de Rhinologie, and which is of interest from a medico-legal standpoint :

On July 15, 1895, Louise W., colored, called at the Eye, Ear, Nose, and Throat Hospital, and gave the following history :

Eight days previously she had been suffering from a violent toothache, and after trying various methods of alleviating the pain, a neighbor volunteered the advice that if she would put a mixture of salt and cayenne pepper into the ear it would cure the toothache. Taking it in good faith, the patient inserted this mixture into the auditory canal, and the treatment was successful to a certain extent, for in two or three hours she was no longer conscious of the toothache ; but she had, instead, as severe pain in the ear. This pain continued, and the next day the family physician was sent for, who, without making an otoscopic examination, declared that the symptoms were due to the pepper and salt, and advised that warm water be syringed into the ear for its removal. The pain continued, with considerable discharge from the ear, and a few

*Reported in American Medicine.

days later the physician advised that the patient be sent to the hospital for special treatment.

A careful examination with the reflected light showed the auricular canal and the drum-membrane somewhat reddened, while in the anterior inferior segment of the drum there was a sharply defined perforation, from which came a purulent discharge.

Catheterization through the Eustachin tube gave a distinct whistling sound, and the temperature of the patient was 99.5°.

The slightly inflamed condition of the external meatus and drum could be accounted for by the irritation due to the pepper and salt, but the perforation and its well-defined character could not be explained by this cause. The patient was then asked if she had made any efforts to remove the foreign body before the advent of the physician, and she stated that she had used the soft end of a feather dipped in oil for this purpose. As this could not have effected the perforation, she was asked if she had made use of nothing else, and she said that she had taken an old toothpick and had inserted it into the ear to remove the pepper and salt, *but had felt a sharp pain while inserting this into the ear*, whereupon she at once desisted. The appearance of the perforation corresponded perfectly with an opening that would have been caused by a toothpick, and this was no doubt the cause of the perforation, as well as of the purulent discharge and fever. Without making any comment on the cause of the injury, the proper treatment was instituted, and the ear soon commenced to improve, and ten days later the perforation had closed and all signs of inflammatory action had disappeared.

In the meanwhile the patient had had an affidavit sworn out against her neighbor, who had advised her to make use of the pepper and salt, claiming that this advice was not given her for the purpose of relieving her, but with malicious intent, and that the conditions, which threatened her hearing and her health, were due to the irritating substances placed into the ear. Some days later, to my surprise, I was summoned as a witness to testify for the plaintiff. When the case was brought before the court, testimony was taken from other parties connected with the case, and finally I was called to give my statement. In answer to questions I stated that the patient had called at the hospital, that there was an inflammation in the ear, that no doubt pepper had been used, as I had seen small particles of it when I examined the ear. When questioned as to whether her condition had been due to the pepper and salt inserted into the ear, I explained that I had made careful notes at

the time that I examined the patient and had come to the conclusion that the inflammation of the middle ear, the purulent discharge, the febrile condition, and the perforation which I had found in the ear-drum had been caused, not by the pepper and salt, but by the prick of an old and probably infected wooden toothpick which the plaintiff herself confessed to have used in the ear. After hearing my testimony the judge promptly discharged the case.

Quite recently I was consulted by a patient who had been injured in a railroad accident, the auricle of the ear being severely lacerated. The hearing on the injured side was quite dull, so that the watch could be heard only when brought in contact with the ear. The patient attributed the loss of hearing to the accident, and evidently considered himself entitled to proper damages.

A careful examination of the ear showed, however, that the loss of hearing was due to a progressive sclerotic inflammation of the middle ear which had evidently existed for a considerable time, but which, as is frequently the case, had not been observed by the patient. When I explained that a similar condition was present in the other ear, and that the hearing on this side was no better than the side that had been injured, the patient was convinced. A careful examination thus prevented a probable lawsuit, with all its attending expense and annoyances.

The careful examination of the ear from a medico-legal standpoint is indicated in a wide range of cases. In cases of violent explosions it is important to eliminate the effects of chronic catarrhal processes which may have been present but not observed, as shown in the case just reported. Railroad employes are required to pass an examination of their hearing capacity to avoid accidents due to defective hearing, and this is also the case in the military service.

In the latter we sometimes have cases of simulation, for the detection of which various methods have been suggested. When the cases are supposed to be bilateral, the subject is unexpectedly called, or a sudden noise is made near him, and the patient carefully watched. While most cases are detected in this manner some present the greatest difficulty.

When the deafness is claimed to be only on one side, the most efficacious method is by means of two rubber tubes, one for each ear, and both connected with a mouthpiece behind the head of the subject. By compressing the tube leading to the ear admitted to be healthy, the sound will be transmitted only to the other ear, and the subject will soon

be confused as to which sound to repeat. Other methods have been suggested for the more obstinate cases, but these are usually effective.

The careful examination of the ear is therefore of importance not only for the purpose of making a correct diagnosis with a view of insuring a satisfactory result in the treatment, but also from a medico-legal standpoint. An insufficient examination may result in the escape of a criminal from his just deserts, while, on the other hand, it may subject an innocent person to an undeserved punishment.

New Orleans.

BLOODLESS OPERATIONS FOR THE REDUCTION OF DEFORMITIES.*

BY ADOLF LORENZ, M. D.

Professor in the University of Vienna, Austria.

Introduction. Complying with the request of your president to appear before this distinguished audience, I must begin with the admission that I feel myself to some extent embarrassed. The reasons for this embarrassment are obvious. More than anything else the feeling disturbs me that I may stir up your resentment by the ill-usage of your fine language —that with every word I may commit the offense which the Frenchman so cleverly calls *ecorcher sa langue*—"to flay his mother-tongue."

Another reason for my disquietude lies in the entire and extraordinary situation in which I find myself through the boundless hospitality of Northwestern University—through the conferring of the degree of "Doctor of Laws," by which I may enjoy the distinction of belonging to the university as an honorary member. I can only assure you that I know how to prize highly this honorary degree.

I must here remark that in the Old World also an honorary title has been given me. You know very well what a great part titles and orders play in the Old World. The title which was conferred on me by His Majesty, the Emperor Franz Josef the First of Austria, reads: "Imperial Counsellor of the Government."

Now, this old and this new title have a certain inner relationship. This relationship consists in the fact that without doubt I am the worst counsellor of the government, and quite as much without doubt the worst

*An address delivered before the Northwestern University, November 28, 1902, at the conferring of the honorary degree of Doctor of Laws on Dr. Lorenz. Reported in the Journal of the American Medical Association.

doctor of laws anywhere to be found, for I understand fully as little about government as I understand about laws.

From this it seems to me that the distinction of a degree is so much the greater the less a man is entitled to it by his respective knowledge, and therefore I prize the honor which has been conferred upon me through the bestowal of this title of a "Doctor of Laws" as one so high that I feel myself entirely unworthy of it.

If, nevertheless, I accept this honor, it is because I look on it not as a personal one, but regard myself only as the agent of courtesy which the Northwestern University desires to bestow on the long-celebrated School of Medicine of Vienna, a member of which it is my greatest pride to be.

This honoring of one school by another is a beautiful expression of the always deeply-rooted feeling that science is one united power which throws a common bond around all nations; that there are, especially for the medical art and science, no separating boundary posts, no dividing ocean, no different nations. The science of medicine joins her adepts around the world in a great brotherhood, whose common highest law is the law of humanity and brotherly love.

In this sense I accept with deepest thanks the distinction that has come to me, and ask your forbearance and goodness if I shall endeavor in the following to bring before you some remarks of a general nature concerning the character and object of bloodless operations.

The Popular Idea of Surgery as Bloody. The terms "surgery" and "bloodless" appear at first sight, according to general comprehension, each to exclude the other, for surgery is known more than anything else as a bloody art. And yet the word surgery means nothing else than handicraft, technical skill, or dexterity. What the hand creates need not mean the shedding of blood. The hand can also caress and coax. But the coaxed of the surgical hand have always certainly a dubious character. In order to characterize bloody surgery one must speak of it as surgery with the knife. The layman can not conceive the surgical hand otherwise than armed with the knife. He thinks as the German poet Uhland writes, of the hand of the barbarous king whom the minstrel cursed: "*Und was sie schreibt ist blut*"—"and what it writes is blood!"

The surgical therapeutics of the ancients armed the hand of the surgeon with fire and sword, as is seen from the old sentence: "*Quod medicina non sanat, sanat ferrum; quod ferrum non sanat; sanat ignis, quod*

ignis non sanat, sanat mors"—"what medicine does not heal, the knife heals; what the knife does not heal, fire heals; what fire does not heal, death heals." The flaming sword or the glittering surgical knife should, according to the rule of the ancients, be held by the strong hand of a young man. Ancient surgery demanded, in fact, the following qualities from the surgeon: "*Chirurgus autem sit juvenis, visu alacri manu strenua nec unquam trepidante; sit immisericors,*" etc.—"the surgeon must be young and gifted, with a sharp eye and a hand that never trembles; be merciful," etc. One, indeed, need not wonder that the poor sick man in past centuries perceived in this barbarous, sharp-eyed youth, armed with fire and the sword, the typical surgeon of that time, an executioner rather than a saviour. To that was added the terrible certainty of feeling without any relief every motion of the knife, every touch of the glowing iron. Then when the terrible torture was passed and the brutal work of the surgeon was finished his responsibility was at an end, for, to speak briefly, the course of the wound was left more or less to favorable or unfavorable chance.

A celebrated French surgeon of the middle ages, Ambrois Paré, used to say after the completion of his operation, "*Moi, J'ai vous ai opera, Dieu vous guerisse*"—"I have operated on you; may God heal you!" Modern skill has taken from the dismal picture of ancient surgery much of its terror. Although the surgeon of to-day does also work with fire and the sword; although his eye is sharp, his hand is sure and never trembling, yet his heart is filled with mercy and all his transactions are determined by a feeling of responsibility for his acts. With the finishing of the operation his responsibility is not at an end; perhaps, in truth, it first begins here. The course of the treated wound is no longer dependent on accident, but will be determined by the sure skill of the antiseptic and aseptic. If the cure does not take the course desired the modern surgeon no more prays, "*Dieu vous guerisse,*" but he asks himself, "Wherein lies the mistake that I have made?"

If the bloody operation under the protection of modern asepticism has for the most part lost its dangers, so it has also, through the help of narcotics, been deprived of practically all of its horror, and dreams may flit about for the patients in those critical moments when the hand of the modern surgeon invades vital organs of which the ancient surgeon had not the remotest idea.

The Fear of the Knife. But notwithstanding all the progress of surgery and the surgeons, it remains a distinguishing characteristic of human

nature to fear the surgical knife and the loss of some of the costly fluid which all vital energy kindles and holds. "Blood is a special kind of sap," very rightly says the poet, and so thinks mankind.

The fear of the knife, however, rules not only the lay public; the doctors also, including the surgeons, do not remain exempt from it. I knew a great surgeon whose daily occupation it was to rummage in the bowels of his fellow-mortals, and who himself was so shy of the knife that he could not come to the decision to allow an infectious abscess to be opened with the knife, and who preferred to await in pains the spontaneous breaking of the abscess.

Concerning this, different nations are to different degrees shy of the knife. In general, I have received the impression that the Americans, as a whole, are much less afraid of the knife than are the Europeans. I believe that the American would allow himself to be quartered if thereby he could reach his goal. The greatest fear of the knife rules among the Orientals. The Mohammedans, as a rule, flatly decline an operation, and prefer to allow the celebrated prayer, "*Alah il alah Mohammed rasul Alah!*" to be written on a plate by the hand of a priest, after which they wash off the ink and make use of the water as a remedy. The inhabitants of the Balkans also, in so far as they are not Mohammedans, characterize themselves by a high degree of fear for the knife and by great vulnerability. It is not easy to compel them to agree to an operation.

Indeed, there is a fear among these shy of the knife that is still greater than the fear of the knife itself—it is the fear of the certain death near at hand if a life-saving or a life-prolonging operation be omitted. In this lamentable situation there disappears among most men the fear of the knife, and we see that under such circumstances the affair changes sides. The patient begs for the knife and the conscientious surgeon sees himself often enough compelled to deny the request of the patient. "Surgery may not be drawn down to the level of the quickening position," one of my teachers used to say. Speaking in general, the surgical knife remains the "*ultima ratio*" to its own harm, according to the old rule, "*Principiis obsta!*"—"Resist the very beginnings!"

We can calmly say that with the position of surgical skill at the present day, and the high moral worth of contemporary surgeons, the fear of the knife by the layman is unfounded, and the educated public has, for the most part, removed this fear to a distance. There is, however, also a well-founded fear of the knife. This fear of the knife I con-

ceive when the knife is not the only, and indeed not the best means to bring about the cure.

Orthopedic Surgery. Such cases in which the knife does not present itself as the best means for healing belong particularly to the province of orthopedic surgery, that branch of general surgery which concerns itself with the treatment of the misformation and crookedness of the human body, especially in the case of children. In orthopedic surgery the endeavor has been made from remotest times to solve the problems of therapeutics in a bloodless way; but these efforts were nearly fruitless, since the means were entirely insufficient.

A celebrated example of the fruitlessness of this endeavor is afforded by the English poet, Lord Byron, on whom a freakish nature bestowed not only poetic genius but also a club-foot. He carried the club-foot to the end of his life. One of his biographers tells us that Lord Byron, in his entire life, could not get away from two things: his club-foot and the hypocrisy of his people. A still more celebrated example of the incurability of club-foot with the means then at hand, as bloodless surgery, is offered by Cardinal Richelieu, who took his club-foot with him to his grave. No more than club-foot could other deformities be brought to cure by the means then at hand in bloodless surgery.

The Disadvantages of Bloody Orthopedy. From this manifest fruitlessness of orthopedy, it was no wonder that surgery, awakened to a new life by antisepticism, seized all problems in orthopedy, and disposed of all misformations and crookedness in a bloody way. The principle of this therapeutics was bone resection. So and so much of every bone or part of a bone through whose change of place and shape the deformity depended was extirpated until the crookedness became straight. The principle of operating-orthopedy consisted also of this, to fit the skeleton, that is, the bones, to the shortened soft parts. Without doubt the results reached in this way were remarkable. But important objections may be made to these results; through bone-resecting a deformity may indeed be straightway corrected, but the straightened limb remains crippled notwithstanding, since the formative ground-work, the skeleton, has become crippled. Such a limb remains shortened, much less adapted to its function. A club-foot, for example, which has been treated with bone-resecting may be battered partly in its form, but it remains, nevertheless, still a crippled foot, since through the operation it has been shortened, since its joints have become in part destroyed, since its mobility has been lost, so that it can no more lift itself up and perambu-

late in normal manner on the floor. Let this example serve for many others.

A second objection to the bloody operation in orthopedic surgery is based on the accompanying dangers which are not less by single operations than are the dangers of the most difficult invasions in abdominal surgery. We know very well how to meet the dangers, but our certainty never can be absolute, for our measures of precaution always remain incomplete, as in everything human. "*Errare humanum est*"—"It is human to err!"

One should never forget that the orthopedic operations are not demanded as life-saving measures. The operations are not an absolute necessity; the deformity would not hurt life, and the patients can reach an advanced age even with their infirmities. The life of the patient, therefore, should never be endangered by an orthopedic operation.

The Justification of Bloodless Methods. From the previously stated reasons, the endeavor, by the introduction of new and successful methods, to make bloodless orthopedy capable of competing with bloody surgery seems to me to be justified. That bloodless procedure can be successful has been proven for hundreds of years by the crippled feet of noble Chinese women, as well as the skulls of South American tribes, modeled to desired forms. But the Chinese method of crippling the foot requires years of care and pains.

In order to be capable of competing with bloody surgery a bloodless method must give at least as quick and as sure results as the bloody method. If the bloodless method unites the swiftness of the result, with absolute lack of danger, it can become superior to the bloody method.

The foundation of success of bloodless orthopedic knowledge won by experience of the extraordinary plasticity of human tissues, especially the tenderness of it in youth. One can, therefore, characterize bloodless orthopedy as plastic bloodless surgery.

The Mechanics of Bloodless Orthopedy. The essence of plastic bloodless surgery is the extremest conservatism; it forms the strongest opposition to surgery by extirpation and resecting; it takes away nothing from the body, it merely gives the individual parts of it another form. This transformation does not take place through mutilation of the skeleton, or through fitting of the skeleton to the soft parts. Bloodless plastic surgery, on the contrary, opens an entirely opposite way; it regards the bone as somewhat invulnerable, and fits the shortened soft parts to the unchanged and unshortened length of the bone.

This fitting on of the soft parts occurs by means of the gradual stretching, by manual or instrumental force, exactly regulated as desired, in extreme cases through the subcutaneous tearing of the shortened soft parts. Plastic bloodless surgery, therefore, regards the youthful tissue as plastic clay, which to a certain extent it remodels in new forms.

The creation of new forms can obviously follow only in the natural way of joint-movement. This way is more or less closed by the crookedness of the human body, since the bones have been deformed and the mechanism of movement has been destroyed, and since the shortened and shriveled soft parts hinder this movement. The chief problem of plastic bloodless surgery is, according to this, to stretch the shortened soft parts in a bloodless manner until they have the normal length, and to lead back the pathologic joints to postures best adapted for their function.

The direct effect of plastic bloodless surgery is limited to the soft parts. The bones have retained their abnormal form and have simply been brought into changed relations, one to the other. The plastic remodeling of pathologic bone forms into normal forms, or those approximating to that which is normal, is left to nature. Nature does not do this voluntarily, but must be compelled to do so. The second and quite as important task of plastic bloodless surgery is to create this compulsion.

One means only exists by which nature can be forced to lead back an abnormally formed bone to a normal or nearly normal form, and this magic means is "the function of the bone as a carrier." The entire problem of plastic bloodless surgery, therefore, is to transform in a bloodless manner crooked limbs into normal postures, that the same (in this normal position) may be subject to function-rendering. Two simple examples may explain what I mean.

Club-Foot as an Example. Look at the congenital club-foot. You can easily construct the picture of such a club-foot if you think of a normal foot rolled up to a spiral so that the sole of the foot is turned in and the back is turned out. The problem therein consists of unrolling this spiral without disturbing the integrity of the skeleton. As I have mentioned already, the resecting of bones is a very barbarous and maiming means, which would not be an unrolling but a dismemberment of the spiral. The unrolling follows very lightly through the so-called modeling redressment, which either with manual, or in the case of older children, with machine power, stretching out all the shortened soft parts until the spiral becomes unrolled and the deformed bones can be brought into a normal position to each other. If a foot unrolled in

such a way be held in its normal position and weighted down with the weight of the body, then nature, through the law of the *functionelle anpassung*, discovered by J. Wolff, takes care of the restoration of the normal forms and the club-foot remains permanently healed. The patient himself, so to speak, has trod his foot into the normal form.

Congenital Hip Dislocation. Another classical example for the bloodless plastic surgery is the congenital dislocation of the hip-joint. The problem here is the same in fundamental principles as that of the club-foot. The bones of the hip-joints must first be brought into proper opposition, be held in this position, and in this position become subject to the function of weighted carrying.

The bloody opening of the joint pointed out the way to solve the problem of setting the dislocated joint in a bloodless manner. Through the preservation of this reposition, and by means of the burden of the weight of the body on the head of the thigh placed in the insufficiently-developed socket, the possibility is given for the socket to deepen itself, and to a certain extent to grow about the head, so that finally it gains the power to retain it permanently.

Should it not be possible to fit the head in the normal place, it can, under the influence of function, form a substitute socket, near the normal socket place, and while no ideal healing will be reached in such a case, there will, nevertheless, be a remarkable functional improvement.

Particularly in the treatment of the congenital hip dislocation plastic bloodless surgery has to boast of its greatest and everywhere recognized results. In the case of the bilateral dislocation this result is for the laity also a convincing one, especially if it sees the profile of such a child before and after the successful treatment. The completely deformed body, with its ape-like habit and the ugly protruding posterior, and the prominent belly and the very ugly zig-zag attitude has been restored as through a wonder to that normal and beautiful form which blooms, according to our German poets, on Olympus.

A Broad Field for Bloodless Methods. In the two examples mentined above, bloodless plastic surgery has substituted, for two really dangerous and threatening operations, means that are harmless and bode no danger. The same thing is the case with the wry-neck, a deformity which, if it be treated timely, that is, in childhood, in nowise demands any mutilating resecting of the muscles, but, on the other hand, may be surely and quickly healed in an entirely bloodless manner.

A broad field opens itself for plastic bloodless surgery in the treatment of the angular deformity of the joints. Only in the case of complete bony ankylosis bloody separation of the bones is indispensable. At least 95 per cent of all the angular deformities of joints are not bony but fibrous, and, therefore, subject to the bloodless plastic surgery. Here the question is one of rapid rectification by means of the modeling redressment and the consolidation of the newly created relations through the weighting-down function. Grave bloody operations may, in this manner, be avoided. Many problems of orthopedic surgery have not yet been solved by means of the plastic bloodless method. For example, the healing of the lateral curvature of the spine is still an open question. Certain it is that this cure can never be reached by means of operations. If it be at all possible to cure lateral curvature it will be effected in a bloodless manner and by bloodless methods which are analogous to the customary methods of plastic bloodless surgery. The lateral curvature of the spine will be overcorrected, and in the overcorrected position be subject to the function of weight-bearing. Until the present time there has been wanting only the technical skill to carry out this plan. I can not here go into the subject, but I also claim that in the local treatment of tubercular joint diseases in children the bloodless conservative method in all cases shows better final results than the bloody method of treatment by resection. It is a principle of my bloodless treatment to restrain the function only so long as it is painful, that is, for so short a time as possible.

At the end of these detailed statements I should add that general surgery works very often with bloodless means. I recall simply the bloodless treatment of strictures and bone fractures and dislocations, which has been a prevalent one for generations.

The Treatment of Fractures. In modern times operative surgery has tried, with little success, to usurp the therapeutics of fractures. When the Röntgen rays taught that it is seldom possible to fix exactly the fractures of bones together one on the other, some surgeons proposed to lay bare every fracture, to fit the broken surfaces exactly together, and then to fasten them by means of nailing. Entirely apart from the wanton danger, called down from this procedure, the functional results throughout were not encouraging. The healing was of long duration; the patients succeeded in getting the use of their limbs later than with the old treatment, which, according to general experience, still had in great part quite satisfactory functional results, even if the anatomic results still left something to be wished for.

Ambulant Fracture Cases. Certainly the old bloodless treatment had great defects; the greatest and grossest of these short-comings consisted in the exceedingly long exclusion of the broken limb from every function. Fortunately, a reaction is under way against this method. I believe that the total omission of fixation of a fracture and simple massage treatment went too far and shot over the goal. The correct means will be to limit the fixation to the absolutely necessary minimum, and to prepare by massage for the taking up again of the functions. My maxim is to fit the bones well to each other, to fix them very exactly, and for the rest to treat the fracture by the ambulant method, that is, to allow the patient to go about after a few days. Through the irritation of the function the healing follows much quicker and surer than by absolute rest. I have had the experience that children who, from whatever reason, had broken the thigh or leg bone could, by suitable fixation of the limb, walk about without pain as early as three or four days afterward. It is then my principle to restore as soon as possible the function of the broken bones in order to make use of this function of irritation for quick and sure healing. The care of the soft parts is a matter of secondary importance.

Conclusion. The question is at hand whether the bloodless method can have any kind of a future in general surgery. No one knows. Impossible, however, it is not. At all events, every one filled with the spirit of humanity must wish heartily for it.

At the present time hundreds of wise men of all nations are studying the question whether the cancer, this most terrible scourge of mankind, is of parasitic origin or not. If the cancer is of parasitic origin, as one must hope, and as many of the most respected surgeons believe, then it may be possible that a curing antitoxin will be found. Then the prophesy of the great Joseph Lister, spoken as he gave his fellow-beings antisepsis, will be appropriate for the second time: "Surgery will be quite different from what it has been heretofore."

If this boon should come to mankind, then, general surgery also will give way to a very little sharp but harmless instrument—the hypodermatic syringe.

May the twentieth century give to the world, burdened with pain and death, this saviour of mankind. The nation which gives birth to this genius will become the first nation of the world through this one deed!

CASES OF GASTROTOMY FOR RECENT GASTRIC ULCER.*

BY C. W. MANSELL MOULLIN, M. D., OXON., F. R. C. S., ENG.

Surgeon to and Lecturer on Surgery at the London Hospital.

In two of these cases the immediate cause for operation was recurrent hematemesis.

CASE 1.—The patient, a woman twenty-six years of age, who was admitted into the London Hospital on May 14, 1900, had suffered severely from attacks of indigestion for the previous eighteen months. Of late the pain had been intense, coming on immediately after meals, or within half an hour, and radiating through from the epigastrium to the back. Until the week before admission actual vomiting had only been of occasional occurrence. Since then it had been almost constant. There had been a slight attack of hematemesis four months previously, and other attacks, becoming more severe, seven days, five days (twice), and four days (twice) previously, and on the morning of admission. On the last occasion the quantity was said to have amounted to more than a pint. Shortly after admission she vomited six ounces of almost pure blood. There was no history of melena, but an enema given the day before she came to the hospital brought away a considerble quantity of blackened blood. The pulse was 140 to the minute, very small in volume and of low tension, and the patient was decidedly blanched. My colleague, Dr. F. J. Smith, under whose care the patient had been admitted, thinking that it was not advisable that she should be allowed the chance of losing any more blood, very kindly had the case transferred to my wards, and an operation was performed as soon as it could be arranged. The abdomen was opened in the middle line, and the serous coat of the stomach was carefully examined. As there was no scarring or other sign of inflammation the stomach itself was packed round with sponges and was opened by a vertical incision midway between the pylorus and the cardiac end. The angles of the incision were held open by pressure-forceps and the mucous surface was systematically everted and examined bit by bit, that covering the posterior wall being brought into view by introducing the hand through an opening in the great omentum and lifting the wall of the stomach into the wound. A large vaginal speculum introduced through the opening in the anterior wall enabled the cardiac orifice and that part

*Reported in the London Lancet.

of the mucous surface which could not be brought up to be inspected without difficulty. A small ulcer was found on the anterior surface near the greater curvature. It corresponded fairly well with the ordinary description of a simple ulcer and had evidently been bleeding recently. There was no induration about its edges and no vessel was visible on its floor. An incision was carried round the ulcer and the whole of it was excised down to the muscular coat, the gap that was left being closed by fine silk sutures which served at the same time to stop the bleeding. The wound in the stomach was closed by a double set of sutures, and the opening in the abdominal wall was secured with silkworm gut. Convalescence was uninterrupted except for a slight attack of parotitis on the second and fourth days. The patient vomited once after the anesthetic. Small quantities of hot water were given by the mouth the same evening and continued at frequent intervals for the relief of thirst, but for the first four days the feeding was carried out entirely by means of nutrient enemata. Solid food (fish) was given ten days after the operation and a few days later the patient was placed on ordinary diet. She soon regained her strength and since the operation she has been perfectly free from the pain and indigestion which troubled her so much before.

Case 2.—A married woman, twenty-eight years of age, was admitted into the hospital on April 25, 1900, for hematemesis. She was sent up in an ambulance with a history of having vomited blood at frequent intervals for four days. Shortly after admission she was sick, bringing up fifteen ounces of dark-colored blood and she became very much collapsed. An operation similar to that already described was performed as soon as could be arranged. When the stomach was exposed an old cicatrix was seen near the cardiac end. This was excised and then a recent but chronic ulcer with indurated edges was found by its side. In the floor of this ulcer was a bleeding branch of the gastro-epiploic artery. The ulcer was included in the incision and the opening in the stomach-wall, which was nearly three inches long and ran almost up to the cardiac orifice, was secured by a double set of sutures. The patient was very much collapsed but she rallied under injections of strychnia and caffein and rectal enemata. For the first three days vomiting was very troublesome. Then it ceased and she appeared to rally. She was able to take small quantities of jelly by the mouth. The bowels acted at first after enemata and then spontaneously. The tongue became moist. The abdomen was soft, not distended, and

moved well with respiration. But, as in the former case, parotitis set in, first upon one side and then upon the other. Suppuration followed and though relief was obtained when the abscess was opened the patient died on the ninth day after operation.

At the post-mortem examination the opening in the stomach was found to be merely held together by the sutures. The edges were sloughing and there was an entire absence of repair. The kidneys were markedly granular and contracted. It is worthy of remark that parotitis occurred in both these cases though there was suppuration in only one. As there had not been any case of post-operative parotitis in my wards for at least five years before and there has been none since it almost seems as if there must have been some connection between them; but the patients were not on the same floor or in the same ward, and the one died ten days before the other was operated upon, so that in all probability it was merely a coincidence, but it was a curious one.

Case 3.—In this case, that of a patient who was under the care of Dr. H. J. Capon, the immediate cause was uncontrollable pain and vomiting. The patient was a married woman, thirty-two years of age. For some months she had suffered in a very severe degree from all the symptoms of gastric ulcer with the exception of hematemesis and melena. These had never occurred. All the ordinary remedies, including prolonged rectal feeding, had been exhausted without obtaining the least permanent benefit. The patient had lost more than a third of her weight and was so weak that she could scarcely raise herself from her bed. The pain came on within a few minutes after swallowing food and was especially severe at the ensiform cartilage. The skin over this region was exceedingly sensitive. Vomiting shortly after food was the rule. This relieved the worst of the pain but it usually continued with more or less severity for some hours after anything had been taken. After consultation with Dr. T. J. Maclagan it was decided to explore the stomach, and on opening it a long, narrow ulcer with slightly thickened edges was found lying at the bottom of one of the rugæ on the anterior surface close by the incision. It was about three quarters of an inch in length and extended down to, but not into, the muscular coat. No other lesion of any kind could be found though the whole of the interior was carefully explored in the way already described. The ulcer was excised, the mucous and submucous layers were sutured together and the stomach and abdomen

were closed in the usual way. In this case, also, vomiting continued for some considerable time. The pain disappeared completely and finally, but owing to the sickness it was some time before the patient could take sufficient food to enable her to regain her strength. Recovery finally was complete.

I may mention that in addition to these cases I published in The Lancet, in 1900, a series of three others in which I had operated for hematemesis, all of which terminated successfully, the patients recovering completely without any drawback. Of five cases, therefore, in which I have operated directly for hematemesis four patients have been cured, and I have little doubt myself that the fifth patient would also have survived had not her condition been so desperate.

It is usually held that the advisability of operating in these cases can be settled at once by comparing the actual mortality of hematemesis in cases of gastric ulcer with that which it is supposed might follow gastrotomy performed under these conditions. The former is put down at from 3 to 5 per cent; the latter is estimated very variously according to the kind and severity of the cases selected. No such comparison, however, is possible under the present conditions. On the one hand, the whole number of cases of hematemesis, trivial and severe alike (and the trivial ones are much the more numerous), is taken and the mortality percentage is calculated from that. On the other hand, only those cases which are absolutely desperate, in which the operation is performed as a last chance after everything else has been tried and has failed, are reckoned at all. No one suggests, or has ever suggested, operating upon slight cases of hematemesis. They should be placed entirely on one side and not be taken into calculation. The only comparison that can be made with any pretense of fairness is between those cases in which surgical measures are advised and declined and those in which they are advised and accepted. I have no doubt as to the result. In three of my five cases the patients were already so bloodless that transfusion had to be performed. In two others I had to decline to operate altogether—they were beyond even transfusion. The mortality of such cases, left to themselves without operation, is certainly not 3 per cent, or even 5 per cent; it is much nearer 100 per cent. And they are the cases with which the only comparison can be made when the result of operation is the subject in question.

As no paper of this kind appears to be complete without statistics, and as the statistics of the mortality from gastric ulcer, and especially from hematemesis, vary a good deal according to the authority from whom they are taken, I asked the medical registrar at the London Hospital, Dr. R. C. B. Wall, kindly to tabulate for me all the cases of hematemesis from gastric ulcer which had been admitted into the London Hospital in the five years from 1895 to 1899 inclusive. All cases of hematemesis from cirrhosis, malignant disease, etc., were carefully excluded. The result is of decided interest. The total number was 246, 202 women and 44 men, and taking one year with another the numbers were very much the same in each. The total number of deaths from hematemesis was 10, or 4 per cent. But the incidence of the deaths according to age was very singular. Under the age of 30 years there were 153 women, with only one death. Over that age there were 49 women, with three deaths, or 6 per cent. Taking the men there were only five under 30 years of age, with one death, and 39 over 30 years of age, with five deaths. In other words, the mortality from hematemesis among men over 30 years of age is 12½ per cent, and taking all men together regardless of age nearly 14 per cent. So far, then, as the question of operation for hematemesis is concerned there must, it appears to me, be one rule for women under 30 years of age and another for women over 30 years, and especially for men. But in considering the advisability of operating in general cases of gastric ulcer there is another point that must not be forgotten. These figures are only concerned with the mortality caused by hematemesis. There are other causes of death in gastric ulcer besides this, and these causes must also be taken into consideration. When the percentage of deaths due to these is added to that due to hematemesis it must be acknowledged that the death-rate due to gastric ulcer, especially in the case of men or of women over 30 years of age, is much higher than is usually believed.

I am fully aware that the treatment of gastric ulcer is, and must remain, in the hands of physicians. But it is becoming more and more evident every day that there are certain contingencies or accidents which may occur in the course of a case of gastric ulcer which, if the consequences are to be avoided, can only be met by the adoption of prompt and decisive surgical measures. This is admitted so far as perforation is concerned, but I maintain that the principle should be carried much farther. It should include all those cases in which, in

spite of rectal feeding and other remedies, the pain after food is taken continues with severity, as it did in Case 3, in which vomiting after food obstinately persists, in which the patient is steadily losing ground, and in which medical treatment has been tried thoroughly for a sufficient length of time, say for some months, and has failed.

So far as hematemesis is concerned it is clear that age and sex make a very material difference. A much greater risk may be run in the case of a woman under 30 years of age than in the case of those over 30 years, and especially in the case of men. My own figures stand at only one death in 153 cases of hematemesis due to supposed gastric ulcer occurring in women under 30 years of age. (I may say that I have reason to believe that that particular period of five years was an exceptionally lucky one). Surgical treatment can rarely be required in them. But if there is one single severe hemorrhage in a case in which the previous history suggests the presence of a chronic gastric ulcer (when the bleeding is probably due to an opening in an artery of some size and is not merely capillary); if in any case there are two separate attacks of severe hematemesis at a short interval; or if there are frequent small hemorrhages, so that the patient is becoming seriously anemic, I believe that the risk of operation is very decidedly less than is the risk of leaving the patient alone, and that the best interests of the patient would be consulted by giving him or her the chance of operation before the condition becomes desperate.

PELVIC FRACTURE DURING LABOR.*

BY U. S. BIRD, M. D., TAMPA, FLA.

During the delivery of Mrs. R., aged 20, Ipara, occurred an accident, the first in my experience, and a rare one in any experience, so far as I can learn. She was under my observation for some time before delivery, which was several days overdue, according to our expectation. Her history was negative, and her pregnancy was free from serious complication.

I was called about 10 p. m., September 11 last. Labor proceeded slowly. Pains were good, but she made little progress during the second stage. Dr. J. M. Grantham gave chloroform. Between pains she rested, but during pains it was impossible to restrain her. The head came down on the perineum, and for some time the scalp was visible without manipulation. I gave her ample time to deliver herself, but the pains were not effective. Toward the end of the time allowed her the accident under discussion happened. During a hard pain accompanied by violent movements, while the nurse and I held the right thigh and leg, I heard a distinct, sudden snapping sound on the right side, but noticed no marked relaxation or mobility. At first I feared a parting of the symphysis, then a fracture of the femoral neck, but saw that neither had happened. Shortly afterward I applied forceps, and with some difficulty advanced the head sufficiently to allow the second stage to be completed naturally about 4.30 a. m. A retained placenta required manual delivery. By this time I had forgotten the sound mentioned. On seeing her a few hours later, after changing, she felt well, but could not move because of a pain in her right groin. At once everything came back to me. An examination easily discovered a slight displacement of the fragments of a diagonal fracture, with mobility and crepitus, in the right horizontal ramus of the pubes. I informed the husband, telling him that I wanted assistance. Dr. Grantham had left town, and Dr. J. S. Helms saw her and agreed with me. In our opinion it was a simple fracture, with no complication other than her puerperium. A seven-inch rubber adhesive plaster was passed snugly around the pelvis, so as to make necessary pressure and avoid soiling. A canvas cot with a hole under the buttocks was used, but was the same day replaced by a rubber-covered mattress cot. As the hole was not well guarded, the mattress became soiled and offensive. A second cot was procured, and both were more carefully prepared, being covered with rubber sheeting and the

*Reported in the American Journal of Obstetrics.

holes well bound with the same. Two pieces of cotton cloth were spread over the head and foot parts, respectively, and two extra pieces of rubber sheeting were so placed as to protect everything else about the hole. The soiled articles could thus be removed as necessary, with a minimum of disturbance. About once weekly she was changed to the extra cot, which had meantime been cleaned and aired.

As regards the fracture her convalescence was uneventful. The bandage was tightened as necessary, with safety pins. Where the edge of the bandage, at two or three points, was rubbed into small rolls there was some excoriation. There was also more or less diffused irritation over back and thighs, due to the presence of the rubber sheet, for which she was bathed and powdered as often as practicable. By gently turning on the side the under surface could be reached in detail.

Her puerperium was an anxious one to me. Her urine not being voided because of her position, I catheterized her about every six hours for two weeks, when she regained control of that function. Probably because of the sinking of the buttocks into the hole in the mattress, the meatus was out of sight, back under the pubes. This not only made operating by touch alone unusually difficult, but made impracticable a satisfactory cleaning of the parts. I was careful with hands and instrument, avoiding cystic infection. Also, because of her position, the lochia were retained, with resulting decomposition, making antiseptic irrigation necessary. This was more difficult and painful than catheterization.

Her temperature ran from 99.5° to 101°, on one occasion being 103.5°. Her pulse was from 80 to 120; most of the time about 100. It was four weeks before they became satisfactory.

On the third day after labor, when the discharge became offensive, she complained of pelvic pain, which ceased that day. There was no subsequent symptom to indicate pelvic infection.

In the midst of my doubts and anxiety there was one encouraging phase of the case: her appearance was reassuring. With pulse and temperature astray, an offensive discharge, enduring an irritating bandage and a fatiguing position, she seemed to be calm and comfortable, except when necessarily disturbed.

Toward the end of the fourth week passive motion of the legs and thighs was used, especially to prepare her for the bedpan and for using a bed in place of the cot. About the middle of the fifth week the plaster bandage was removed without inconvenience, and she was placed in bed,

greatly to her relief. Massage and passive motion, with cautious active motion, were continued. Her knees were quite painful. During the sixth week she sat up in a chair, and by the seventh week she was walking. On first sitting up there was coccygeal pain. She now walks satisfactorily, but awkwardly because of general stiffness. There is no unpleasant symptom referred to the point of fracture. She walks up and down stairs without assistance. Her health is normal. She apparently presents an instance of exceptionally good recovery from a rare and serious condition.

Later—December 20—she is well, presenting no symptom of her injury. Walks naturally.

The accessible literature is limited, as there is no public, and no very comprehensive private, medical library at hand. So far I have found nothing in reference to my subject.

TREATMENT OF SUPERFICIAL CANCER BY THE X-RAY.*

BY WILLIAM ALLEN PUSEY, A. M., M. D., CHICAGO, ILL.

Professor of Dermatology in the College of Medicine of the University of Illinois.

The most interesting development of the last year in the use of X-rays has been in the treatment of cutaneous carcinoma. There were reports of favorable results previously, but the accumulation of evidence in favor of treatment by X-rays has taken place within the last year. The results are not in all cases cures, but in all cases thus far reported there is unmistakable evidence of the beneficial influence of the rays. Rodent ulcer of the nose has been apparently cured (Stenbeck, Everett Smith—each one case). Three cases of epithelioma of the nose have been entirely cured (Johnson and Merrell). Twelve cases treated by Sequeira at the London Hospital gave three perfect results—the other nine improving and still under treatment.

Case-report.—I have one case worthy of report: Mrs. C., age sixty-eight, with the following history: About twenty years ago a wart appeared in the right supraclavicular space and gradually increased in size. Three years after its appearance the surface broke down and an ulcer developed, which, after two years' duration, was excised by a well-known Chicago surgeon. The disease recurred in the upper angle

*Report presented to Tri-State Medical Society of Iowa, Illinois, and Missouri. Reported in American Journal of Surgery and Gynecology

of the scar and enlarged until 1894, when she came to St. Luke's Hospital. It was then the most extensive epithelioma I have ever seen, covering almost the entire upper third of the back and extending over the right shoulder to the clavicle. During 1894-5 she was in St. Luke's Hospital, in the services of Drs. John E. Owen and L. L. McArthur, where vigorous attempts were made to extirpate the diseased tissue. A large part of the tumor was destroyed and extensive grafts were made, so that the diseased area over the back was converted into scar tissue, which has remained healthy until the present. The area over the right shoulder, from the spine of the scapula behind, to a point below the clavicle in front, an area covering the entire upper surface of the shoulder, was not cured. From that time until this winter she has been more or less constantly an out-patient at St. Luke's, and for two years past it has not been thought feasible to make any further attempt at extirpation of the growth. The extent of the growth, at the time she presented herself for treatment with X-rays, was such that the disease involved the greater part of the area over the right shoulder. The largest lesion was situated at the juncture of the neck and shoulder, and consisted of three confluent ulcers, forming in all an ulcer with a diameter of about three inches. This was a typical epitheliomatous ulcer with elevated, rolled, hard, pearly borders. In addition, there were perhaps twenty other epitheliomatous ulcers, varying in size from a finger-nail to a small pea, located around and posterior to the large ulcer. Extending down over the front of the shoulder was a triangular space with the apex below the clavicle, which contained numerous small epitheliomas. Some of these were ulcerating, but most of them were intact nodules. All of the tissue of the affected area was inflamed and indurated. There was no evidence of involvement of contiguous glands or of the underlying tissue. There was free discharge from the ulcers, and for many years the patient had suffered severe pain. The tissue removed for microscopic examination presents the typical histological picture of superficial epithelioma. The tissue has also been examined for blastomycetes, which were absent. A section made seven years ago also shows characteristic epithelioma.

The patient was put under exposures to X-rays on January 15, 1901, and had almost daily sittings until February 14, eighteen in all. Within a week the discharge from the ulcers almost entirely ceased, and the patient volunteered the statement that her shoulder was free from pain and that she was able to sleep comfortably for the first time in many years. Since this first week there has been practically no discharge

from the ulcers, and almost no recurrence of pain. The disappearance of the discharge was the more interesting because before the patient came under treatment with X-rays she had been a regular attendant at St. Luke's Hospital out-patient department, where her shoulder had been dressed as often as necessary. On February 4 the ulcers were decreasing rapidly in size, and, what was more significant, the rolled edges were shrinking. On that date, the patient was hurt by a fall and was not able to appear for further exposures until March 13. In the interval she was in the Charity Hospital, where, at my request, the physicians kindly saw that no change in the local treatment was made from my application of boric acid vaseline. She returned for treatment on March 13, and from March 13 to May 4 she had twenty sittings, varying from daily sittings to sittings at intervals of from four to five days. By April 5 the evidences of epithelioma were limited to a small ulcer not larger than a little finger-nail at the site of previous large ulcer, and to two rows of very characteristic nodules in the supraclavicular space. Up to this time the exposures had always been made so that the greatest intensity of light fell on the shoulder, and the lesions over the clavicle, therefore, had received less of the rays. After April 5 the upper service of the shoulder, which had been getting exposures of fifteen minutes, was given exposures of five minutes, and the lesions over the clavicle were given direct exposures of fifteen minutes. Within five days after beginning these exposures over the nodules in the supraclavicular space a very remarkable change was noticed in them. They began to shrink and to disappear rapidly. By April 16, that is, after ten direct exposures of fifteen minutes each, these nodules had entirely disappeared. They were absorbed and disappeared, leaving no trace of their existence, without dermatitis or any breaking-down occurring. Sittings were discontinued on April 16, as the shoulder showed slight dermatitis. By April 29 this irritation had entirely disappeared. Between April 29 and May 8 the small ulcer on the upper surface of the shoulder, the last trace of epithelioma, entirely healed. Her condition at present, and since May 6, is one of perfect health.

I particularly call attention to the character of the scars. They are called scars for lack of a better term, but there is hardly any evidence of scar tissue. The skin is smooth and soft without contractures and shows practically no trace of the previous ulcers. Whether this case is a cure or not time can only determine. There is no evidence of epithelioma remaining, and as far as can be told in the length of time that has elapsed, the patient is cured.

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X-RAY THERAPY.

The treatment of disease with the Röentgen ray is still a live topic with the profession, and will continue to be so for a long time. Like all new things it is catchy, and many who have never had any experience whatever in dealing with electricity have rushed into the use of the Röentgen ray without stopping to think before so doing, and the result has been disappointing in many instances, not because the ray was not efficient, but because the doctor did not understand his machine or did not recognize the fact that all cases do not obey the same law under the Röentgen ray. Cases which appear from a clinical standpoint identical will behave dissimilarly under the influence of the ray, hence many no doubt have been disappointed in the beginning as to the results obtained. Again, lack of knowledge as to the proper management of the machine has been a drawback to many. A general knowledge of electricity, and especially the mechanics of electricity, will be a great help in the management of any machine. The outlook for much good work in this line of therapy is still very bright. That we all have much to learn concerning the action of the X-ray, and in the selection of cases that are suitable for its use, goes without saying. It is certainly not a cure-all; such an assumption would at once condemn it, as we know too well that cure-alls are valueless. It will take much time and patience to settle down to the facts concerning the action of the X-ray and the cases which are amenable to its influence.

Current Surgical and Medical Selections.

Case of Poisoning by Morphia Injection Treated by Infusion of Salt Solution.—(Edward F. Willoughby.)—At about 1 p. m. on September 15, 1901, I was called to see a woman who had, as I learned, taken eight grains of sulphate of morphia in three hypodermic injections less than half an hour before. She had not acquired any tolerance, having had it administered on one occasion only, when it caused such violent sickness that she refused to have it repeated, preferring to endure the pain from which she was then suffering after an abdominal operation. I was soon joined by the locumtenent of her ordinary medical attendant, who was out of town, but he being a young man, left the conduct of the case to me. On our arrival the patient was still semi-conscious, but within ten minutes she sank into a state of profound narcosis from which it was impossible to rouse her. During the first hour we administered three injections of one-fiftieth of a grain of sulphate of atropine and one tenth of a grain of nitrate of strychnine without any perceptible effect except that the strychnine excited spasms from every ten to twenty minutes. The rigidity of the muscles, which lasted for from three to five minutes each time, greatly interfered with the artificial respiration which soon became necessary. We gave also at least a dozen injections of twenty minims of ether, with what benefit we could not say. The partner of the patient's own medical attendant joined us later, bringing a galvanic battery. Whenever we desisted from our efforts at artificial respiration the natural respiration ceased, and it was four hours before we were able to discontinue it. Though by this time natural respiration was re-established and the spasms had passed off, the patient's pupils were contracted to pin-points, her complexion was dusky, and the narcosis was so profound that the application of the strongest possible interrupted current to the soles of both feet did not excite the slightest movement, even of the toes. She had not passed any urine and I drew off only about an ounce with the catheter. I then suggested the subcutaneous injection of the physiological salt solution as recommended first by Sahli of Berne. The partner was somewhat doubtful and adverse to the procedure, and was absent for an hour in quest of the apparatus. But when about a litre had been infused by gravitation into the subcutaneous tissue of the flank the effect was almost immediate, and was striking. Within twenty minutes the duskiness and coldness of the skin had given place to a natural color and warmth, and the patient had so far recovered sensibility and consciousness as to struggle violently against the mechanical and electrical stimulation employed to keep her awake. She could answer questions intelligibly and she recognized the other medical men, but she knew me to be a stranger and continually begged to be left alone.

I felt certain that the startling improvement following so soon after the subcutaneous infusion of thirty ounces of salt solution was owing to the

impulse given by the increased intravascular tension to the gastric and intestinal exudation, and consequently to the elimination of the morphia, which ordinarily is excreted mainly in the bowel, and little, if at all, by the kidneys; but that a certain proportion of the drug being probably reabsorbed the complete removal of so large a quantity would be long and tedious. I knew the action of potassium permanganate in the breaking up of morphia, even as Dr. A. P. Luff had shown, in the presence of oxidizable matter, as vomit, and I should have had instant recourse to this antidote had the poison been swallowed. But it occurred to me that since the drug was now passing out into the alimentary canal it might be destroyed as fast as it appeared by contact with the permanganate and reabsorption might be prevented. I therefore mixed about a quart of a dilute solution, instructing the nurse to give the patient a wineglassful, alternately with her nourishment, every quarter of an hour or twenty minutes through the night until the contraction of the pupils had passed off. I did not see the patient again, but was informed by her medical attendant that by 9 a. m. on the next day her condition was quite normal but for the sense of fatigue and soreness consequent on a score of hypodermic punctures and four hours of sustained artificial respiration.

In looking back on such a case one naturally asks oneself to which, if any, of the means employed the success was really due, which were superfluous, and whether any were useless or possibly even hurtful. We used hypodermic injections of atropine, strychnine, and ether, *secundum artem*, in deference to usage and because nothing could be taken per os, but I can not honestly say that they were of any benefit except the ether, which could not but act as a general stimulant. The respiration ceased again and again while the action of the atropine was visibly antagonizing that of morphia on the pupils, and the tonic contractions of the muscles caused by the strychnine made the work of artificial respiration extremely laborious. This alone kept the patient in life, but that was all, for when at the end of four or five hours from the taking of the poison natural respiration seemed to be re-established, she was still absolutely insensitive to pain or to electric shocks and deglutition was still impossible. The effect, however, of the saline subcutaneous infusion was such as to admit of no doubt, and it was startling in the rapidity of its manifestation. So long as no fluids could be swallowed no urine was secreted, and there was no reason why the morphia should be eliminated by the bowel until the intravascular pressure was raised by the infusion. Then even a long and anxious time, not wholly free from danger, would have ensued, during which much of the drug would have been reabsorbed and circulated again through the brain but for its destruction by the permanganate *pari passu* with its first elimination. In short, I look on the injections as useless on the artificial respiration as having served to keep the patient alive until means could be taken for washing out the poison, the saline infusion as having effected this, and the permanganate as having greatly aided the result by preventing reabsorption.—*London Lancet.*

A Case of Intractable Nasal Hemorrhage.—(Dr. G. Hunter Mackenzie.)—On December 29, 1901, I was asked by Dr. James Mill, of Leith, to see a case of nasal hemorrhage of about one week's duration which had proved refractory to the usual methods of treatment. The patient was a man forty-nine years of age, rather alcoholic, and with slight albuminuria. On examination of the right nostril the seat of the recent bleeding was readily located, as is usually the case, on the anterior third of the septum, about one centimeter above the nasal floor. Under cocaine the hemorrhage area was freely galvano-cauterized and a pledget of cotton-wool saturated with a solution of adrenalin chloride was inserted. This treatment proved ineffectual, for on the following day I was again asked to see him on account of frequent recurrence of the bleeding. The cauterization and applications of adrenalin were repeated over a wider area of the septum, and during this process the patient became unconscious and had a convulsive attack. He was assisted to bed, when the hemorrhage again commenced in a more intense degree than ever. He continued to bleed very freely for the next twenty-four hours, with the result that his condition became so extremely serious that we had him removed to the Edinburgh Eye, Ear, and Throat Infirmary. Further local treatment having proved unsuccessful, on the morning of January 1, 1902, chloroform was administered by my colleague, Mr. John Cumming, and with a nasal spoon and curette I stripped off the whole of the mucous membrane of the septum. Very profuse hemorrhage accompanied this procedure, but it soon ceased spontaneously. On the night of the second (thirty-four hours after the curetting) the patient had a moderate bleeding, and on the morning of the 4th there was a very slight recurrence. I was fortunately present on the latter occasion, and on examining the patient I found that the blood was oozing very slightly from the roof of the nostril in close contiguity to the septum, an area from which the mucous membrane had not been removed. As the bleeding was extremely slight I did not consider further treatment to be necessary. From that date to this (May) there has been no further hemorrhage and the patient has quite recovered his formed good health.

As, so far as I know, this is the first instance in which severe nasal hemorrhage has been treated by curetting the mucous membrane, I have thought it fit to put it on record.—*Ibid.*

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

THE ORIGIN OF SOME DISEASES AND A CONSIDERATION THEREOF.*

BY M. K. ALLEN, M. D.

That class of diseases which are variously designated as contagious, transmissible, or communicable have always very properly attracted the most earnest consideration on the part of not only sanitarians, but all medical men as well. Their sudden and oftentimes obscure development and invasion, the malignant type often exhibited, and the large areas over which they not infrequently extend, at once arrests the attention and concern of the skilled medical profession and all mankind generally.

Many diseases which were once regarded as constitutional or septic are now known to be in reality specific and pathogenic, or mostly parasitic. The prevention and limitation of the class of maladies referred to must ever, therefore, largely occupy the attention of all persons who study the causes, the courses, and the results of disease.

Investigation as to their etiology is always a fundamental inquiry. While it may be to a certain degree possible to treat any given disease skillfully without the knowledge of the cause or causes producing it, yet it is certainly more skillful and satisfactory to know at least something of the origin.

But what do we generally understand by etiology or cause?

Not the beginning, or efficient, or final cause, most certainly.

To find the condition—physical, chemical, or biological—in which phenomena manifest themselves, is all we can ordinarily hope for.

*Read before the Louisville Clinical Society. For discussion see page 180.

What we understand, then, by etiology is, for the most part, the conditions under which phenomena manifest themselves. These conditions, which we are in the habit of calling causes, signify the modifying influences present in the person, as well as the modifying influences of surroundings, much more often than they mean anything in the specific entity which we are so often prone to call the germ, and then again perhaps allude to it as the cause. It is true of every disease, as well as every created living thing, that there must have been a beginning. It must not, then, be considered a mere platitude to say that there was a time when the first case of smallpox occurred.

Cholera made its appearance on the Ganges as a new and distinct disease. A disease may develop which is not derived from another precisely like it, but occurs because analogous conditions which gave rise to the first case of the kind have again arisen, yet producing very pronounced deviations.

It would seem perfectly possible, then, that at the same time we may have a communicable disease in one individual which has arisen from some previous case of the same character, and at the same time another case of the same disease resulting from a combination of influences or conditions such as produced or gave rise to the first case.

The dictum of "*omne vivum ab ovo*" can not at this day be applied with that same precision or with the finality with which it was formerly quoted. Most of us now believe that there is such a thing as evolution, and while we recognize original types we also recognize departures from the normal, which may have come to be so representative and paramount as to constitute newness in all essential particulars.

In this day of thought and investigation we have come to recognize that many diseases are but developments and cultures of microphytic or microbic life, and we may very wisely turn to the facts of botany for illustration and verification of our opinions and theories.

We do not in this day cling to divisions of orders, genera, and species as was formerly done. We now recognize two forces: first, nature or heredity; second, environment. A plant, for instance, inherits a likeness which it naturally tends to retain, but it is frequently so modified by environment as to greatly change it, and it may even sometimes entirely lose its identity. Sometimes environment predominates over heredity, particularly under the influence of proper cultivation by the horticulturist.

If we admit, which we must, that cultivation or surroundings can change a poisonous plant into a harmless one, or possibly completely

modify it, is it unreasonable to conclude that a microphytic disease should lose its apparent identity, and finally, in a new culture-medium or under special conditions, become specialized? The wonderful facts of evolution fully demonstrate that in this way we may have, in respect to symptoms and treatment, a new disease, the result of a series of changes which have been evolved by environment—by conditions in persons or in surroundings—these changes becoming self-assertive, predominating over heredity so as to secure, for at least a time, a period of fixity of its own. This fixity may be a new disease. The now well-known history of hybrids, the so-called accidents of their occurrence, and the fertility of hybrids are such that we are compelled to look upon them as new forms of life, becoming established into an individuality of their own, not in any way responsible to its own species.

Some of our skillful horticulturists are now producing many varieties of ferns by hybridism, and it not infrequently happens that some so-called chance growth shows wide departures. It being seemingly so well established that so much of disease has to do with elementary and minute forms of vegetative life, it is easy to see how the facts of evolution and hybridism have such a significant bearing upon the appearance and propagation of disease.

Illumined as we are by investigation in the botanical world, and the marvelous revelations as to the actualities and possibilities of the origination of new forms, distinct from the parentage, we are enabled to penetrate the hidden sphere of disease origin, and may understand how some diseases cease, how others arise, how some lapse back to their heredity while others are made permanent, or are specialized by their environment, and how still others are hybridized into specific forms and acquire a fertility and fixity of their own. We may then conclude that the range of deviation is so wide as to account for very many of the anomalies of disease and for the organization, cessation, or modification of form or type.

It seems now to be very well established that harmless microphytes may become pathogenic, and that the different forms of micro-organisms present have relation to each other, and that the culture-media in disease, viz., the person and his surroundings, determines the character of the micro-organisms fully as much as the micro-organisms determine the character of the disease. Accepting the theory that the microphytic origin of most of the communicable diseases are correct, the study of the laws of this evolution and hybridism is very vital.

It is reasonable to conclude that it is in this direction that we are to account for the origin of new diseases, or for such variations in type as obscure or destroy identity. If it be possible through investigation to arrive at the conclusion that in this sense many diseases begin, we have a new department of study in that we are called upon to define with accuracy how and why this origin takes place in order that we may thwart or circumvent conditions.

If it be found to be the result of evolution through a long series of changes, it then behooves us to study the process and to carefully watch and record all the gradations by which the unfriendly result is attained, so that at some stage we may intercept the progression and threatening changes that are occurring, or ascertain what condition of the person, or what condition of surroundings, constitutes the influence which brings about the change, or provides the fertilizing medium for the disease and causes it to break forth. On the other hand, if it is the result of a hybridism which occurs spontaneously or rapidly, we need to study precisely what forms of vegetative life thus incline to coalesce, under what condition the union occurs, and how their conjunction, development, and fertility are to be intercepted.

If special conditions of some parts, as the throat for instance, or certain conditions of the secretions furnish a special soil or culture-fluid for the propagation of low forms of vegetative life, these should be studied with exactness. Competent scientific observers and investigators in their study, both in the botanical and biological field, have wonderfully enlightened us in our endeavors to determine how much and under what circumstances micro-organisms imperil human life. The practical knowledge thus far gained by this means is extremely valuable and apparent, because these results can be made applicable in not only the prevention, but in the treatment of disease. If by reason of such scientific investigation we can come to understand that either under the laws of evolution, or as the result of admixture or hybridism, symptoms and pathological effects sometimes become specialized so as to constitute a new disease which maintains its type, the knowledge will be extremely valuable. There are now many examples of how proximity of different diseases may modify symptoms, which are both valuable and suggestive.

It is thought by many that yellow fever is a mongrel, or an admixture of the jungle fever of Africa and typhus fever. At one time typhoid fever was thought to very much resemble typhus fever, but it was finally ascertained that typhoid was subject to modifications because of sur-

roundings and also the acquired power of self-propagation, and at this day it is not positively certain that there are not low grades of cesspool and other adynamic fevers which may not establish another well-marked and recognizable departure from what we now look upon as typhoid, and the new disease may ultimately present a separate and distinct individuality.

At one time scarlet fever and measles were recognized as the same disease, and it was doubtless because the difference in symptoms as presented were not nearly so well marked as at the present time. We see the order of departure very frequently in diphtheria, which often has a localized origin, and ordinary forms of sore throat often seem to pass away from a general to a special type. Typho-malarial fever has no pathognomonic lesion which distinguishes it from typhoid fever, yet we know that this malady has symptoms which make it distinguishable.

Smallpox, which has practically covered this entire country during the past five or six years, prevailing even in our own midst, has not shown that degree of virulence and fatality as did this disease some twenty or more years ago—in fact, this disease now presents such a different type that it is not unfrequently difficult of diagnosis and doubts sometimes exists even in the minds of some medical men as to the true nature of this apparently new disease.

The study of the type assumed by this disease during the past five years has been most interesting and unsatisfactory. May the mildness of type in those afflicted not be accounted for by inherited immunity resulting from the effects of vaccination on the part of their ancestry? or, is it the direct result of a more thorough general vaccination now than formerly? or, again, may not the disease have been imported from southern countries in a mild tropical form? My observation leads me to believe that the people generally, especially outside of large cities, are not now better or more thoroughly vaccinated than they were twenty years ago.

The theories presented in this paper may be suggestive and applicable in considering the peculiar type of smallpox now prevailing in this country. New possibilities have arisen through biological investigation which do not involve spontaneous generation, but yet do render probable what is equivalent to the *de novo* origin of cases of disease, which afterward are chiefly communicated by the first and succeeding cases.

If we admit that such origins do take place, we may then investigate the secret of the laws of combinations and the conditions which favor

the evil evolution or facts of hybridism, and may then seek to combat these by starting similar processes in opposite directions or by sterilization, neutralization, disinfection, and all the various details of radical sanitation. The established fixity of some diseases and the reasons therefor, and the changing forms and types in others, leads to several practical results.

Through the study of parasites or germs we are enabled to inform ourselves as to the phenomena of disease, but this of itself is not the key to rational and successful treatment. The study of conditions, taken in connection with circumstances under which new forms of disease appear, should receive more careful attention, rather than only an attempt toward the mere finding of a specific form. We should study carefully what conditions are liable to cause this or that particular microphyte to be present in a given case.

By such investigations we might be enabled to account for occasional occurrences of a disease seemingly independent of any previous case, as well as the changing type and new diseases also, and therefore diseases could be treated more in view of type rather than name. I do not think we can too greatly magnify the importance of close and careful observation, in order that we may be led to success in not only the treatment, but in the prevention of disease.

Hygiene and sanitation, in their most scientific application, can accomplish far more from a consideration of conditions and surroundings in so far as disease types and the various modifications in which diseases are manifested than is possible by an attempt at the finding of microphytes as the source of disease, and the effort to cure the same by expelling micro-organisms or attenuating them.

The prevention or obliteration of conditions will accomplish much more. The object of this paper would be fully accomplished if an awakened inquiry were stimulated looking to modes of accounting for the localized origin of disease without any antecedent case upon the hypothesis that the laws of evolution, environment, hybridism, or modification by culture frequently give rise to diseases so different from their prototypes as to have individuality and permanency of their own. Such inquiry would not only be relevant, but very helpful in the way of prevention, and it is rational to believe that by ascertaining the laws governing these transformations and modifications of type, as well as the origination of special varieties, we would be enabled to find new and effectual means for the prevention or limitation of many diseases which now afflict the human family.

Louisville.

SOME OBSERVATIONS ON THE PROSTATE.*

BY ROBERT HOLMES GREENE, A. M., M. D., NEW YORK.

Consulting Surgeon St. John's Guild Hospital; Surgeon Penitentiary, Blackwell's Island; Visiting Dermatologist, City Hospital.

Commencing on February 26, 1896, and ending October 27, 1897, with the coöperation of my assistants, Drs. S. W. Schapira and N. Greenfield, I examined, at the Out-Patient Department of Bellevue Hospital, two hundred and fourteen cases of urethritis presenting a discharge from the anterior urethra. These cases were in no way selected because of any subjective symptoms pointing toward the involvement of the prostate; in fact, were somewhat remarkably free from them. They represented the ordinary class of dispensary cases. These cases were examined,first, in reference to the relative frequency of the involvement of the posterior urethra; second, as to the condition of the prostate of every case; and, third, in twenty-nine cases the prostatic secretion was examined microscopically.

The method of examination used to discover the extent in which the urethra was involved consisted in, first, washing out carefully with warm water through a soft catheter the anterior urethra; then allowing the patient to urinate; the urine was examined by a simple test, such as "Donne's," for pus, the cases being those in which there was no indication of involvement of the bladder.

The examination of the prostate was made by the insertion of the finger in the rectum to as great a height as possible in order to feel in the vicinity of the vesicles; the purpose being to distinguish the general size of the vesicles and prostate, and any irregularities of the lobes of the latter that might be present.

As stated above, cases were not picked out presenting subjective symptoms pointing toward an acute prostatitis, and pain, even on pressure over the prostate, was a symptom not particularly complained of. In forming an opinion as to any swelling of the prostate I tried to be as conservative as possible. In cases of doubt, the size of the prostate was put down in the table as apparently normal. I had no particular preconceived theories to fortify, and was desirous only to observe the facts as correctly as I could. The examination of the secretion from the prostate was made as follows:

* With pathological report by James W. Blanchard, M. D., resident pathologist to the New York City Hospital. Reported in American Journal of Surgery and Gynecology.

The bladder was thoroughly washed out in clean water until the outflow was very clear. The prostate was then massaged through the rectum, the finger being carried as highly as possible. The few drops that the patient was able to urinate immediately after the massaging, containing the secretion from the prostate and water, was collected in bottles and examined microscopically. In some of these cases the secretion was extremely scanty in quality—so much so as to be hardly discernable to the naked eye, in a few drops of the fluid passed; but in the large majority of cases an amount consisting apparently of several drops could be seen in the several drops of fluid passed.

Of the two hundred and fourteen cases examined, all told, I have a history of the number of times that they had urethritis in one hundred and twenty cases. Of these, forty-five stated that this was their first case, and seventy-five that they had had one or more attacks previously. By the use of the method of examination just described, of the two hundred and fourteen cases the posterior urethra was found involved in one hundred and forty-two cases, or sixty-six per cent; the anterior urethra in seventy-two cases, or thirty-four per cent.

The above statistics as regards the involvement of the posterior urethra do not, I believe, materially differ from those previously published; but which have not, I think, as yet received that attention from the profession generally, or even from some of the specialists in this branch of work, that they deserve.

The examination of the prostate showed an enlargement to the examining finger in one hundred and two cases, or about forty-seven per cent of the total number of cases examined. In one hundred and one of these cases inflammation of the posterior urethra was present, and in one case it was apparently confined to the anterior urethra only. The enlargement (or swelling, if that word is preferred) was most marked in the left lobe of the prostate in seventy-three cases, or about seventy-one per cent; the right lobe in nineteen cases, or about nineteen per cent; and a general enlargement was present in ten cases, or about nineteen per cent of the cases in which any enlargement was present.

The examinations of the secretions collected, in a manner as described above, were made in twenty-nine cases, six by one and three by the other of two gentlemen well versed is microscopical technic; and the twenty other cases were most exhaustively examined by Dr. J. W. Blanchard, Pathologist of the City Hospital of New York.

The reports of the examinations of the nine cases mentioned above do not tend in any way to discredit the results of the examination as made

by Dr. Blanchard, but were not carried out to such an extent as his. I intend collecting more clinical material and publishing with Dr. Blanchard, at a later date, a table containing a full report of every case examined. I have the full report of the twenty cases already examined by Dr. Blanchard, and I submit the following report of one case as an example of about what the others show:

CASE 135.—(1) Pus. (2) Leucocytes. (3) Few eosinophiles. (4) Very many small lymphocytes, most of them well preserved. (5) Very many erythrocytes. (6) Large and small spheroidal epithelium, with eccentric nucleus, few with central nucleus. (7) Few bodies without granules taking mixed strain homogeneously, 7 x 9 mm. in diameter. (8) Few bacteria; mostly short, thick bacteria.

Out of the twenty specimens examined by him Dr. Blanchard reports the presence of pus in sixteen. Diplococci in three. The most ordinary characteristic of the secretions as they presented themselves under the microscope seemed to be pus, mucus, and corpora amylicia, showing an infiltration into the prostatic follicles, while the presence of lymphocytes would tend to show, I believe, that some, however slight, interstitial changes were taking place. It may be difficult to draw positive conclusions from the statistics here presented—that we have two forms of posterior urethritis, one apparently remaining on the surface, the other dipping down as well into the prostate, is well known. They may call attention to the fact already known that we have congestive inflammations of the prostate frequently accompanying urethritis, which do not become acute enough to give rise to abscess formation. What becomes eventually of these swellings of the prostate it would be interesting to know, as to whether the prostate entirely returns to its normal condition or not. I am personally inclined to believe that in many cases these swellings do not entirely disappear. I also believe that we may meet with them due to other causes as well as urethritis, but tabulated observations of these conditions extending over a series of years are lacking. Further data, also, as to the average normal size of the prostate than are at present at hand would help us in revealing some of the many mysteries connected with that organ. Certainly, also, the accumulated evidence of observers during the past ten years, of urethritis in the male (with the exception of those gentlemen who publish statistics which tend to demonstrate that it is an ephemeral disease which can be cured by a few irrigations), tend to show that as in the female it is a serious affection, prone to involve tissues of the body much deeper than those in which it originally commenced.

EXOPHTHALMIC GOITRE.*

BY GEORGE R. MURRAY, M. D.

The author made a communication on exophthalmic goitre based upon one hundred and twenty cases. One hundred and ten cases were women and ten were men, or a proportion of eleven to one. The onset was nearly always insidious, and the age of onset was therefore difficult to determine, but the disease had most frequently started in the earlier decades of life, the greatest liability to the disease existing between fifteen and thirty-five years of age. In some of the cases there was a history of the complaint in the family, but this was not invariable. Recent events producing powerful emotions had acted as exciting causes in some cases. The first symptom most commonly noted was the thyroid enlargement. In one case the goitre had been present thirty-four years and in another thirty-two years before the onset of other symptoms. In twenty-seven cases the enlargement was noted as "slight," in thirty-six as "moderate," and in twenty as "considerable." The frequency of the pulse was distinctly increased in all the cases; in half the cases it was between 120 and 150 per minute. Cardiac murmurs were often present and the different varieties of murmur were referred to. Exophthalmos, though usual, was absent in one quarter of the cases. Nervous tremor was found to be a very constant sign, being present in one hundred and eleven of the cases. Restlessness and various nervous symptoms, such as suppressed excitement, hallucinations, and insomnia were also frequent. Paroxysmal exacerbations of these and other symptoms occurred in a considerable number. In seventy-six of the cases an unusual dampness of the skin was noted. Rapid respiration was met with in some instances. Diarrhea or an increased frequency of defecation was by no means uncommon. The condition of the urine was only noted in nineteen cases, and in four of them there was a trace of albumen. The prognosis of the disease was uncertain. The course, as a rule, was very slow, but two rapid cases were referred to, one of which died. Out of forty cases seen from time to time seven died, two remained stationary, and thirty-one progressed favorably. The treatment was briefly referred to. Rest in bed was advocated and Weir-Mitchell treatment was stated to be of great service. Faradic electricity gave relief, and in some cases

*A discussion before the Royal Medical and Chirurgical Society. Reported in the London Lancet.

resulted in improvement. Dr. Murray had been disappointed in the use of belladonna. Extracts of thymus and suprarenal glands had both been of service.

Dr. W. Hale White referred to some cases under his own care. He had found a distinct association of rheumatic fever either in the previous or family history. The mental results were often very serious and important. A considerable proportion of his cases had suffered from polyuria, and in some of them the urine contained copper-reducing substances which might afterward disappear. This polyuria was often an early symptom. Wasting and anemia were striking symptoms in many of the cases he had observed, and pigmentation was sometimes very marked. Dr. Hale White would very much like to know what Dr. Murray's experience had been in regard to fatal cases, and especially as to the condition of Peyer's patches. In three cases he had observed these structures were considerably enlarged. Dr. Hale White thought all medicinal treatment was unsatisfactory, though there were very numerous remedies. Rest in bed was important.

Dr. William Ewart wished to confine his remarks to prognosis and treatment. The course and prognosis were doubtless very uncertain, but he did not take nearly so unfavorable a view of the disease as formerly. It appeared to him to be a toxic disorder in which the toxin had special effects on the nervous system. He had been led to look to the gastro-intestinal tract as the source of a toxic or fermentative process. In several cases he had noted gastric dilatation. The treatment ought to be applied, in Dr. Ewart's opinion, in this direction, both to the stomach and the intestinal tract.

Dr. H. D. Rolleston believed that exophthalmic goitre had become more common of recent years, and he thought this might be traced to the nervous strain of modern times. Reference was made to a case he had observed which developed after long exposure and mental strain in the recent Boer war. The occurrence of paroxysms or crises in all the symptoms, particularly the nervous symptoms, was a feature which he had observed. Pigmentation was not uncommon. The spleen had been enlarged in two cases which he had seen, and this was interesting in reference to the enlargement of Peyer's patches noted by a previous speaker. It was remarkable how few cases were met with in the post-mortem room. The prognosis as regards life was really not very bad, in his belief.

Mr. A. Maude remarked that the number of cases in which there had been antecedent goitre of a parenchymatous type was a fact which seemed to have been omitted from English authoritative writings on the subject. The question of locality was a point on which more information was wanted. Exophthalmic goitre was very rare in India, though parenchymatous goitre was so common. He had seen several cases in which heredity was distinctly observed. During and after the siege of Paris there was a distinct access of cases of the disease, and this coincided with Dr. Rolleston's remarks on fright as a determining cause. He (Mr. Maude) had noted a curious paroxysmal rhythm of rise and fall in force (as distinct from the rate) of the pulse. Insomnia was a very constant symptom in all the cases he had seen. Turning to prognosis, he had been watching one case for twenty-five years. He had met with three fatal cases—one died from influenzal pneumonia, one from general peritonitis after salpingitis, and one from septic endocarditis. All three died at about the age of thirty-five years. He thought the patients rarely died from Graves' disease, but on the other hand they very rarely recovered completely, perhaps never. He was skeptical as to treatment. Thymus had done good in some cases which had profuse diarrhea. He had tried Nauheim baths without any good effects.

Dr. Hector Mackenzie had collected particulars of fifty-two cases (of which six were men) which he had recently observed. In about 6 per cent of these there was a history of rheumatism. Enlargement of the thyroid was altogether absent in five cases. As regards the circulatory system, cardiac pain was a symptom in two cases. Exophthalmos was only absent in two patients. Tremors and physical changes were the most important and frequent symptoms. Suspicion was a leading feature of the insanity which was so often associated with the disease. In all severe cases abdominal disturbances of various kinds were very marked. Albuminuria was present in six of Dr. Mackenzie's cases, and it was very easy to produce glycosuria artificially by the administration of glucose. Death occurred in six cases. Recovery had certainly occurred in some of his cases, though he could not say if it was permanent. Relapses were not uncommon. He had not the slightest doubt that the main lines of treatment should be of a hygienic kind. Rest was important, but it must be in pure country air. The four drugs on which he relied most were belladonna, bromides, iodide of potassium, and arsenic. Electricity had no effect in his experience.

Dr. T. Batty Shaw referred to a case in which father and son were both affected. He had lately seen cases in which dullness in the first and second right intercostal spaces pointed to enlargement of the thymus gland.

Mr. William Blake could not agree that thyroid gland was always harmful. He had seen marked improvement under thyroid treatment in two cases.

Dr. S. Vere Pearson referred to the post-mortem records of St. George's Hospital. In ten years there had been four thousand one hundred deaths, but only two fatal cases of Graves' disease had been recorded. One was that of a female, aged twenty years, the disease being associated with rheumatism and cardiac valvular disease. The other case was that of a female, aged twenty-six years, in whom the thyroid gland was very much enlarged and the thymus was persistent; the left ventricle was hypertrophied and dilated.

Dr. W. P. Herringham noted that Dr. Murray's cases did not appear to include the "forme fruste" of the disease, in which palpitation and tremor were the leading features. He had doubt about the existence of such cases, which afterward developed other symptoms.

Dr. G. Newton Pitt believed that much too fatal a prognosis was given in many cases. He had seen two very serious cases which afterward made very good recoveries in spite of the most marked emaciation. Cases might live for many years, but he doubted whether they ever completely recovered. He agreed with previous speakers about the inefficacy of drugs. He had seen one case in which suprarenal extract seemed efficacious.

Dr. Murray, in reply, said he had not noticed enlargement of the Peyer's patches nor had he met with gastric dilatation. Thyroid had done considerable harm in several cases. It certainly seemed as if the disease were more common in the north than in the south of England.

THYROID EXTRACT IN PAINFUL MENSTRUATION, ETC.*

BY J. COPLIN STINSON, M. D.

Thyroid extract is a comparatively new remedy. It has been used in myxedema, cretinism, psoriasis, goitre, exophthalmic goitre, obesity, chronic melancholia, fractures, fibroid tumors of the uterus, menorrhagia, amenorrhea as a part of obesity, hemorrhages dependent upon flexions and versions, keloid, chlorosis, gout, rickets, diabetes, acromegaly, deafness of the myxedematous, sclerosis of the middle ear, as a galactogogue, and in recurrent cancer of the breast. The writer has been studying clinically the action and uses of thyroid since it was introduced to the profession, and in this paper takes up the action of this animal extract in dysmenorrhea and ovarian neuralgia, etc. The difficulty in curing these cases depends upon the fact that their impressions of pain become more and more marked as time goes on, and nothing so much increases their susceptibility as the use of opiates. The abuse of opium, other narcotics, anodynes, and stimulants is widespread ; and furthermore these drugs, after routine use, induce conditions of the nervous and other systems that are more difficult to cure than the original disease. Having determined the conditions of the uterus, ovaries, etc., in all cases wherein an examination is justifiable, the treatment is commenced. For the pain many remedies have been used—*e. g.*, pulsatilla, cimicifuga, salicylates, guaiacum, mercuric bichloride, potassium iodide, viburnum prunifolium, caulophyllum, viburnum opulis, bromides, gelsemium, cannabis indica, nitro-glycerine, antipyrine, apiol, opium, etc. Opium in some form is most frequently used. No remedy is more abused nor should be prescribed less frequently, as more harm than good has been done by its administration. It is very easy to get into the habit of using it, and only in very extreme cases should it be used, and then it should preferably be given in the form of a suppository. Of course all cases of dysmenorrhea are somewhat relieved by rest, recumbent posture, hot applications to the lower abdomen, and hot douches, but there are many patients who can not afford to lay up for several days each month. In thyroid we have a remedy of much value in these cases. It supplies material for the system which influences metabolism, is carried in the plasma to the tissues and organs, and has a specific action upon the vasculo-motor nervous mechanism of the uterus and ovaries. Reaching these organs, it takes

* Reported in the American Journal of Obstetrics.

part in the process of metabolism, becomes loosely incorporated with the anatomical elements of the parts, and in passing through them takes part in their activity, modifies their action, and lessens the blood supply to the pelvic viscera. As the sensibility to uterine and ovarian pains is readily diminished by thyroid extract, it is thus a uterine and ovarian anodyne and sedative, as it arrests the afferent impressions at their formation. It belongs to that class of nervous depressants that paralyze the medulla before consciousness is destroyed—*i.e.*, the same class group as aconite. It is an indirect anodyne, as it does not act immediately through the brain, but attacks the pathological cause of the pain in the uterus, upon which it then acts as a specific anodyne. Thyroid, possessing a powerful and peculiar action like this, can fully deserve the name of a uterine and ovarian alterative anodyne and sedative.

Marked systemic effects are produced by medium doses of thyroid. The nervous and vascular systems are considerably affected, the pulse rate is increased, arterial tension lessened, the cerebrum is somewhat stimulated, loss of weight shows increased tissue waste, and the normal functions of the skin, uterus, and presumably other organs of the body are re-established.

In April, 1901, the writer was treating a patient for painful menstruation. For years she had suffered severely with pain at each period, during which time she had to cease her work, go to bed, apply hot applications, and use internally hot drinks—household remedies—whisky, paregoric, opium in several other forms, and many other remedies without much relief. Examination of her pelvis and abdomen showed the uterus and ovaries in normal position and good condition. I prescribed for her suppositories of belladona and opium, and gave in addition internally belladonna, chloral hydrate, viburnum, and paregoric. These afforded her some relief. I also several times at my office dilated the cervix uteri, using metal dilators. These produced considerable pain, but relieved the severe menstrual pains somewhat. A few months later, on account of considerable obesity, I put her on a diet, exercise, and extract of thyroid internally. She had been using the thyroid for several weeks when her menstruation came on. She continued the thyroid during this time, and she afterward reported to me that she had gone through her period without any pain at all, whereas at all other times she had suffered severely. She reduced her weight twelve pounds by using the thyroid, and she has since then been relieved at each period of dysmenorrhea by the administration of thyroidin, one grain in capsule three times a day, given for two

days before menstruation, and increased to two grains three times a day during menstruation. (*Formula of thyroidin:* dried extract sheep's thyroid, one part represents six parts fresh gland; whitish powder.) She was and is thus completely relieved of pain without producing any disagreeable symptoms; furthermore the thyroid appears to act also as a general tonic, increasing muscular and nervous energy. Since this case the writer has repeatedly used thyroidin in painful menstruation with most pleasant results, affording nearly perfect relief in over eighty per cent of cases. Thus it is evident that thyroid extract is efficacious; administered as above described, does not produce thyroidism, as the drug is not taken long enough at a time to produce untoward symptoms. During the intervals constitutional and local treatment may be required. This implies correction of all defective hygienic conditions, greatest care in diet, bathing, dress, exercise, and mental exertion, and regulation of the bowels. Moderate sexual intercourse has a favorable influence. Pregnancy and childbirth often cure the disease. Reduced iron one-half grain, arsenic one-sixtieth grain, strychnia one-sixtieth grain, gentian one-quarter grain, and cascara one-half grain, in pill or capsule, taken three times daily or more frequently, is of value in the anemic. The general nutrition should be improved by malt extract and a full diet. All excitement, both local and general, as well as excessive sexual intercourse, dancing, and the prolonged use of the sewing machine should be avoided. All pathological lesions of the uterus, adnexa, and vicinity should be remedied by proper medical and surgical treatment. Any disturbances of digestion and excretions should receive appropriate diet and treatment. If during the interval there is pain (neuralgic) in the uterus or adnexa, I find that thyroidin, one to two grains, administered twice or thrice a day, acts splendidly in relieving pain without producing any untoward symptoms. Cases not relieved by thyroid or other medical treatment should be subjected to surgical operation, *i. e.*, thorough dilatation of the cervix uteri and whatever other additional operations are required.

Reports of Societies.

LOUISVILLE CLINICAL SOCIETY.*

Stated Meeting. Dr. Carl Weidner, President, in the Chair; Dr John R. Wathen, Secretary pro tem.

Reports of Cases.

Nasal Syphilis. Dr. S. G. Dabney: I have a case to report which presents nothing unusual except its obstinacy. It is a case of nasal syphilis, and has been under observation about a year, previous to which time it was under the care of a genito-urinary specialist. At that time he had a lesion of the nose, but nothing which was not accessible to the practitioner. Since that time he has had some necrosis of the vomer and a piece of the bone removed; the mucous membrane has nearly closed over, and there is only a very small perforation. I found recently that he now has an exposed bone on the floor of the nose. The ordinary routine measures have been carried out under the directions of the specialist. His internal treatment is one with which I am not very familiar, and I speak of it in order to ask for information. He is taking the iodide of strontium, which I have never prescribed in my life. He was given full doses of mercurials last spring, and also had iodide of potassium up to thirty-drop doses. He happens to be a man who visits other cities a great deal, and I gave him letters to doctors in my line in St. Louis, Cincinnati, and other cities. Holmes at one time thought he ought to leave off all internal treatment. He looks as healthy as any man in this room, and the whole question is in regard to the internal treatment, and I am sorry the specialist in that line is not here to-night. The whole trouble with the case is its obstinacy. I think he is now taking sixty drops of the iodide of strontium. The man has been very patient and faithful in taking treatment, and I would like to hurry it up. I was afraid the strontium was not active enough, but I talked with the specialist, and he is a man who has been in that line for ten years and has a large practice. He says the strontium is fully as active as the iodide of potassium, and that the patient can take more of it. I should think such large doses would injure the heart. I would also like to

* Discussion reported for this journal by Edgar Allen Forbes.

know whether the gentlemen present are in the habit of giving mercurials in tertiary syphilis.

Dr. M. F. Coomes: I am very much interested in Dr. Dabney's case, because I have had one of the same kind. I do not know that the man is well yet. He was in the hands of a dentist who was consulted about his teeth, and then he fell into my hands. I found the alveolus rotten and the septum in very bad condition, and I gave him the protoiodide of mercury until he was saturated with it. Then I got him up to eighty drops of the iodide of potassium three times a day. I would start all these cases with mercury first, even though they may have had this treatment in the early stage. It is one of the best alteratives as well as specifics.

Dr. F. W. Samuels: I have nothing to say about the mercurial treatment except that it is a question how far a case shall go before we call it tertiary syphilis. I want to say a word about strontium. It was suggested to me about a year ago, and I gave it to a patient for about six months. He was a charity patient, and I bought the salts myself, the ammoniated salts and the iodide of strontium and the other preparations. I found the results the same as in Dr. Dabney's case. He had had syphilis ten years and had lesions in the mouth and some bone trouble. The gumma in the mouth had become large ulcers and would not heal under large doses of strontium, though I pushed it beyond the dose of my friend. Then I put him on the fifth of a grain of the iodide of mercury and the iodide of potassium, and I never saw a case heal so nicely in my life. There is no better tonic than the protoiodide of mercury.

Dr. Irwin Abell: In regard to the strontium I think it is generally held now that it is not the potash that influences syphilis but the iodine, and the iodide of strontium contains about as much iodine as does the iodide of potassium and is not so depressing. If pushed as vigorously as the iodide of potassium, possibly the results should be as good. The use of mercury in tertiary syphilis is very often practiced. The protoiodide is generally administered in combination with the iodide of potassium. I have never used the iodide of strontium instead of the mercury.

Dr. John R. Wathen: While I have never used the iodide of strontium in syphilis, they tell me it does not produce the stomach disorders common after the use of iodide in the other forms. Of course, for that reason it is to be recommended more than the iodide of potassium. In

all of these late cases where the iodides act badly, there is a new preparation being used a great deal, a vegetable anti-syphilitic, "primapurificans." It takes the place of the iodides and mercurials, and is used very extensively at Hot Springs.

Dr. P. F. Barbour: Speaking of the chemistry of the strontium salts, the per cent of iodine in the iodide of strontium is less than in the iodide of potassium, according to the molecular weight.

Dr. Carl Weidner: I am glad the point has been brought up. I have not used strontium much, but I want to say in regard to mercury that I have seen it used with good effect in tertiary syphilis. We should not neglect to give mercury, for we are justified in using it. It is more and more recognized as a true anti-syphilitic. I would like to repeat what I said in a report made some years ago about the effect of mercury in diseases where we are least liable to get good results. I have seen at least one case that beautifully illustrates the effect of mercurials. This man had gone along until he was disqualified for his work on account of optical trouble; he could not see the money on the race-course table where he was employed, and could not stand or walk without great difficulty. Yet this man improved under simple mercurial treatment, and went back to work in about a month. Since that time I have believed in the use of mercury in the later stages of syphilis as well as the earlier.

Dr. S. G. Dabney: I have been very much interested in the discussion about iodine. I must confess I was under the impression that the potash itself played some part in the remedy. It seems, however, that iodide of strontium stands at least third in the list of iodides. I was also under the impression that iodide of potassium was more active than the iodide of sodium. I will say that the case I reported stands the iodide of potassium very well, and there is no reason for abstaining from it. I am glad to have heard the discussion and can profit by it.

Syphilis. Dr. Irwin Abell: Since the question of syphilis has been brought up, I have a case now under treatment which I might report. He is a professional ball-player, who was on the St. Louis team last season. He acquired syphilis December a year ago, and was placed under treatment January a year ago. He had at that time a severe headache, pain in the bones, and high temperature. All of these subsided under treatment except the headache. Then he began to

complain of intense pain in the muscles, particularly the quadriceps extensor and other muscles which he used in throwing. He had to give up his position on this team and take a place on a smaller team farther South. He continued his mercurial treatment and pushed the protoiodide to three and a half grains a day and continued all summer at that dose. He got better and worse. It is hard for him to describe his symptoms. He came back to Louisville in September, with both pupils dilated and all the symptoms I have mentioned. He was unable to carry on his studies in a preparation for a profession and could not eat or sleep well. He got some benefit from Hot Springs, where he took iodide up to five hundred grains a day and inunctions of mercury up to four or five drachms.

I suggested that he consult some other men, and he saw Dr. Marvin, who suggested that he be given the iodide again. He gradually ran up to ninety grains three times a day without any benefit. Then he saw Dr. Blue, who told him he thought it was not due to syphilis at all, the same thing I had told him long before. He is now taking electrical treatment and massage, continuing tonic doses of mercury, about a grain and a half of the protoiodide a day. He has both pupils dilated, but they respond to light. They are much more widely dilated than normally.

Dr. S. G. Dabney: I do not think the pupil symptoms in Dr. Abell's case are referable to syphilis. If the dilated pupils did not respond to light, I should say it was syphilis. I should suspect a neurotic element in the case.

Dr. P. F. Barbour: I have the same idea as Dr. Dabney as to the pupillary reaction. In children's work I find a state of relaxation sometimes in which the pupils become widely dilated. It has become a habit with me, when I meet a child with dilated pupils, to look upon it as an indication for tonic treatment.

The essay of the evening, "The Origin of Some Diseases and a Consideration Thereof," was read by M. K. Allen, M. D. [See p. 161.]

Discussion. Dr. George W. Griffiths: I have doubted very much if we have had any smallpox for several years, the type now is so different from what it used to be. We very rarely hear of a death from smallpox. The paper is a very elegant one.

Dr. M. F. Coomes: I was very much interested in the paper. We are all bound to get into deep water when we come to speak of the sub-

ject of evolution. In the vegetable world particularly we know that we are constantly producing hybrids, and in this lower world, whether vegetable or animal, Dr. Allen has opened up a new field. If we can produce these hybrids in the plant and animal world, it looks reasonable to suppose that we might have the hybrid diseases he speaks of. I hope to live long enough to see some of his suggestions carried out. I was very much struck with what he said as to the origin of the first case of smallpox and with the possibility, if we could get rid of this disease, that we might have another "first case."

I wish to call attention to one fact. I first studied medicine in the office of a man who treated a great deal of syphilis during the war. The town was full of it, and it was not the syphilis of to-day. We do not see any of those terrible cases now in which every inch of the skin of the body is covered with the eruption. Even in the tertiary form it is not so severe. Of course, we know that no man would now treat a case of syphilis without waiting for the secondary symptoms to appear. I saw one case in this town which illustrated the importance of this. A man came to me sixteen years ago and wanted me to look at his penis. He had a typical chancre, and finally consulted Dr. D. W. Yandell, who said that it was a typical chancre, but advised waiting for the fever. The fever never came, and no treatment was ever instituted. He married, and has a boy sixteen years old, and the child has never had any of the symptoms of syphilis. He was contaminated by a woman who had a syphilitic sore at the time of the sexual intercourse. If that man had been given ordinary treatment, he would have had a cloud over him all his life. It was a great godsend to him that he was not treated.

Dr. S. G. Dabney: I asked Dr. Allen just now if he had not been reading Darwin's "Origin of Species," and he admits that his paper is based on some of the arguments of that book. It seems to me there is a vein of possibility about it. We may find that there is something in this theory of a mixture of diseases and that the germs become attenuated. It is certainly a very interesting paper.

Dr. T. P. Satterwhite: My remarks will be based chiefly upon the smallpox view. Unquestionably, from what I have seen in the last few months, the type of smallpox has changed Some months ago I was very much like Dr. Griffiths—I doubted whether it was really smallpox, it was so mild, and deaths were so rare. I have had the misfortune of having under my care during the last few months at least twenty or

twenty-five cases of so-called smallpox at the School of Reform. I doubted my diagnosis at first and brought an expert in to solve the matter, and he called it smallpox. We all recognize the contagiousness of it, but we had no way to isolate the cases, and all were exposed. I was astonished that not more of the children took it. None of them were sick enough to go to bed, but were just as bright and playful as if it had been chicken-pox. A few of them had fever. Some of them had never been vaccinated and yet did not take smallpox. I am of the opinion that the form throughout the country is of a less virulent type.

There were two of the children who had the eruption and had been vaccinated, but they had probably not been vaccinated long enough to prevent their taking the disease. Their eruption was about the same as that of the others. My diagnosis of smallpox has always been based upon the shot-like feeling of the eruption and its appearance in the palms of the hands and soles of the feet. Whenever they have the eruption there it is not chicken-pox. Now, I do not know, but I have had it contradicted by those who have said that you may have the eruption of chicken-pox there.

Dr. P. F. Barbour: Following Dr. Satterwhite's remarks, my children had chicken-pox three years ago, and every one of them had the vesicles in the palms of the hands and soles of the feet. There was no smallpox in the city at the time and no doubt about its being chicken-pox. They had it in the mouth, hair, neck—everywhere.

One phase of the paper of special interest to me was the matter of the antagonism of the micro-organisms. Recent investigations with the typhoid bacillus showed that with a poor culture it remained active for seventy-two days; but when placed where it could be attacked by other organisms, such as abound in cesspools, its life was very much shorter. Another interesting theory is that whooping-cough may be modified by vaccinating the child. There certainly seems to be some antagonism between the two. Dr. Larrabee and many others used to believe it.

Dr. Carl Weidner: I think Dr. Allen has given us a very unique paper, as he promised us in the beginning. It is very hard to comment upon it. It is more food for thought than something to be commented upon. I do not know that I understand all of his paper. We all know that there is such a thing as hybridism up to a certain point, but it is limited. We have only a very few animals where the propagation takes place; I speak of animals more particularly. In the matter of

plants we have made many experiments with wonderful results, but I understand this is limited to certain species. I am not posted sufficiently to speak of that.

Dr. M. F. Coomes: They cross the apple, plum, and the peach. As a result, they get the stone of the peach, the color of the plum, and the skin of the apple.

Dr. Carl Weidner: I thought the number of experiments was smaller than it seems to be; as I said, I am not up on that. Admitting that this is true, that will give plausibility to the theory of new diseases resulting from a new hybrid. We all recognize that the bacteria with which we have to deal in disease are modified by various agents. We might mention heredity and environment, which are great modifying agents. We know that certain culture mediums will produce bacteria of greater virulence. We can so attenuate the germ that it is almost harmless, just as we can influence them by chemicals or by temperature above or below that in which they grow best.

Again, we know that certain germs are modified when passed through animals. A little man is sacrificing himself to-day in experimenting with tuberculosis to ascertain the effect of implantation upon other animals or individuals and then re-inoculating with the same germs.

We must take it for granted that there is always a seed which looks for a favorable chance for development. The fact that we may not have had a certain disease for a long time is not conclusive.

The smallpox we have seen recently has been of a peculiar type, and the question has not yet been settled. It may be that previous vaccination in some of our ancestors has produced an immunity by heredity, just as with the negro in Africa.

Dr. Allen has given us a paper that is hard to discuss. He might be condemned by some, but we must admit the possibility of hybridism.

Dr. M. K. Allen: I have very little to add. I am very glad that the paper elicited the discussion. It was prepared very hastily, and I do not know that I would have presented it before any other Society in the city. There is food for thought in it. Dr. Coomes struck the key-note of the paper more than any other speaker.

When we come to smallpox, we all know that it has prevailed all over the country for the last six years. We have had a great many cases in Louisville; there are eighty-eight in the Eruptive Hospital to-day, possibly fifteen of them from the county of Jefferson. At

present it is of a very mild type, but we have lost eight cases within the last two months, more than we have lost for five years. While it has been generally of a very mild type, in some sections of the country it has been very virulent. In Indianapolis, Cleveland, and some other cities they have had a very large death-rate. As set forth in the paper, I believe this type was imported here by the Spanish-American War. At any rate, after the return of these soldiers every State in the Union was afflicted with a mild type of smallpox. Whether it is a tropical form or whether it has been modified by vaccination as suggested, is a question. I do not believe that the people of this country are better vaccinated to-day than they were twenty years ago. I have two men in Louisville, who have done nothing else but vaccinate for nearly two months. When we get a case of smallpox our custom is to fumigate the house and vaccinate all in the vicinity who are unable to pay other physicians for doing the work. We find that a great many people are opposed to vaccination. To-day we found a whole family of colored people right here on Chestnut Street who declined to be vaccinated. It is so all over the city.

As suggested, some doubt has existed in the minds of many medical men in this city with regard to smallpox. Referring to Dr. Satterwhite's remarks about diagnostic symptoms, I have never seen in my life a case of chicken-pox broken out below the knee, certainly not on the bottom of the feet. Whenever we see the eruption on the palms of the hands and the soles of the feet, we can positively assert that it is smallpox. I had charge of the Eruptive Hospital at a time when we had two hundred and fifty cases, with a population not half as large as it is now, and during one winter we had five hundred and fifty-five deaths from smallpox. Just as Dr. Satterwhite suggested, you may now see a case that has never been vaccinated with apparently an attack of varaloid, and you will see another case that has been vaccinated and has a good scar, and it will develop a pretty good case of smallpox. That is absolutely true.

Dr. M. F. Coomes: As editors we get weekly reports from Chicago, and in a recent report a mortality from smallpox of sixty-five per cent was reported to have occurred in Wisconsin.

REPORT OF CASE.

Dr. F. W. Samuels: I want to speak of a case which was reported before the Surgical Society at its last meeting. At the time it did not appear to me to be especially interesting pathologically, but the more I have thought over it the more interesting it has become. The case was reported by Dr. L. S. McMurtry—an operation for tumor of the breast—I do not remember whether it was malignant or not. The tumor was removed, and the incision closed up and healed without suppuration. One week later a severe hemorrhage took place, and he reopened the scar and had to tie a spurting artery. It seemed to me that this was almost impossible from a pathological standpoint, until I began to look the matter up. I have looked through the literature and talked with a number of my friends. I report the case here simply to find out whether any gentleman present has had any similar experience. As I remember it, the bleeding vessel was about the middle of the incision, near the border of the pectoralis major muscle. The indication for reopening the wound was the swelling and discoloration of the skin. Of course, the artery was only a branch. There was no evidence of infection found after the reopening, the wound having healed clean and nice.

Dr. W. H. Wathen: Hemorrhage occurs in various forms of operation even as much as ten days afterward. Where the vessels are not properly closed, or where a necrotic condition results, the slough allows the stitches to separate and hemorrhage occurs. I remember one case of vaginal hysterectomy where there was no hemorrhage during or after the operation, and the woman was in convalescence ten days afterward, when she suddenly bled profusely from an open artery and her life was saved only by hurried tamponing. While there may have been no manifest hemorrhage until just before this bleeding was detected, there probably was never a healthy condition of the artery, and doubtless there was a little hemorrhage all the time up to the moment when the artery gave way. I dare say, had a bacteriological examination of the blood been made, some form of degenerative germ would have been found. We know in cancer of the breast, especially when large, the integrity of the vessels is weakened and secondary hemorrhage liable to occur.

I remember a case of laceration of the cervix, ligated with catgut, and I was called hurriedly to the infirmary and found that the woman

had bled so much that the vagina and the bed were full of blood. That was six or eight days after the operation, and I found the ligatures still tight. There was not a bit of suppuration. I had to throw catgut high up and include the branches coming out from the uterine artery in order to stop it.

Dr. Irwin Abell: It seems almost impossible to explain hemorrhage that late unless on the idea of infection. There must have been some disease present to cause a blood-clot to pass out the mouth of the artery. If the wound had healed primarily, that should have prevented the blood from coming from an artery of that size. If we grant that the wound was infected at the end of six days, it is strange that the blood should have had sufficient force to push its way out. This usually happens at the end of sixty hours, even in the case of a large artery like the thoracic. It may have been something in the condition of the patient's blood. The formation of fibrin is not yet well understood. It must have been that or else some form of infection.

Dr. F. W. Samuels: It is a unique case to me. In the case reported by Dr. McMurtry, he stated that the woman was in very good health and that there was nothing at the time of the operation to lead him to suspect a diseased condition of the artery, and there was no infection afterward. The wound healed thoroughly. It would take a tremendous amount of pressure to force a clot out of the lumen of an artery after that length of time. I do not see how it was possible for a case of that kind to occur. All the cases of hemorrhage I ever saw simulating this were the result of sloughing. That must be left out of the consideration of this case so long as we know of no form of degenerative germ being there. I am going to look the matter up further from time to time.

NEW YORK ACADEMY OF MEDICINE—SECTION ON ORTHOPEDIC SURGERY.

Meeting of February 20, 1903. Dr. T. Halsted Myers in the Chair.

Presentation of Patients. Dr. Ely presented a case of cured congenital dislocation of the hip that had been under treatment for the last two years. The child, five and a half years old, was operated on April 28, 1901. She had the usual symptoms, and had an inch and three quarters shortening, and the operation was very difficult. It took about two hours. The first plaster was on about six months, the next one for about three months. The last spica was removed in November, 1902, making about eighteen months in plaster-of-Paris. She now has legs of the same length exactly, and can run and hop with either leg. Dr. Lorenz took the leg operated upon for the normal one.

Dr. Homer Gibney presented a case of cured hip disease which had been under treatment for the past two years. Within three weeks the brace has been removed and we have put on a plaster spica which goes down to the knee. All the symptoms have subsided. The last examination showed that the flexion was almost normal, but to guard against any injury, when all acute symptoms have subsided and the child can flex and abduct the limb almost normally, we adopt a spica. The next procedure is to put on a high shoe, and then the child is discharged as cured.

After the children have worn a splint for two or three years, sometimes we send them away from the hospital and allow them to take the apparatus off at night and sleep without it. The mother comes and reports to us that the child has no pain and no discomfort. We then allow the child to take off the brace by day. Lately we have adopted this method. Of course there is a slight shortening, and there may be a little reflex spasm in this case, but it is hardly noticeable.

Dr. Whitman: I asked five patients with rheumatoid arthritis to come here to-night, and there are two in the hospital I might have brought. This first girl is now twenty-five years old; her right arm is helpless and perfectly stiff; she had a certain amount of stiffness in the left arm and stiffness in the shoulder. She was worse at one time than this little boy, the second case, who is now about the same as she

was when we began her treatment. This shows the characteristic appearances—the thickening of the wrists and the inability to extend the fingers. I was interested to hear the mother say the child had had no treatment whatever except what she described as "exercise and nourishing food." This little girl, the third case, was brought to me about a year and a half ago. At the age of one year she began to have this painful condition of the knee. She was taken to the hospital and was treated at first for a tubercular disease of the knee. That treatment was apparently successful until our attention was directed to the fact that the trouble had appeared in the other knee; then it came in the elbows, hands, and wrists, as you see here. The child was in a very bad condition, and then it had the measles, and, as sometimes happens, the contagious disease apparently cured her of the other trouble; she was almost well except for this shoulder, but then she gradually relapsed again. After a time she went and had electricity applied—the wave current, not the spark current. The immediate effect of this was very favorable, and I have noticed it in a number of instances. The pain disappeared and the disease was apparently checked. She has had no treatment for three months, and the improvement, so far as pain is concerned, has continued. Of course no one would think of calling this child well, but she is certainly a great deal better.

Dr. Townsend presented a case of Pott's disease, abscess, and paraplegia. This little girl is seven years old; brought to the Hospital for Ruptured and Crippled seven months ago. At that time a small kyphos had appeared and the mother was instructed to bring the child back for treatment, but she failed to return. When the child was again brought to the hospital paraplegia was complete, her respiration was very much increased, and signs of tuberculosis, in addition to Pott's disease, had developed. It is stated to have followed a distinct attack of pneumonia, with severe pain in the side and marked cough. The rapidity with which the disease has progressed is interesting, and an abscess has formed in front of the spine. The abscess is probably outside the vertebral canal; it may press somewhat upon the lung. I would like to ask the opinion of the Section what operative procedure, if any, they would advise in a case of this kind?

Dr. Sayre: I think it would be wise to explore that abscess; it seems to me it does go around the spine.

Dr. Virgil Gibney: It looks to me like a mediastinal abscess.

Dr. Goldthwaite: I think the safer procedure for the child would be to explore it. It seems to me it is perfectly possible that it may communicate with the posterior mediastinum, and by getting rid of it you may get rid of the irritation that causes the child to cough, and she would be relieved. Of course, the opening of the mediastinum is a good deal of an operation, but it seems to me it would be possible.

Dr. Ely: If that was my case I would let it alone. It strikes me it would be unwise to operate on it. It seems to me that the child is more comfortable when lying on its back.

Dr. Homer Gibney: The method of keeping children on their backs has been shown here a number of times; we find we can keep them on a frame.

Dr. Townsend: It is a case where the parent did not realize the gravity of the condition. As matters are growing steadily worse, perhaps the mother will feel that our advice is proper and will carry it out, but we can not compel these people to come into the hospital. We can not get the child under treatment.

Dr. Myers: It is not proven in this case that the symptoms are due to the abscess. Pain and reflex spasm may cause them. Unless the child has a marked temperature or leucocytosis, showing secondary infection, I would rather, for a time, put it in some protective apparatus. The mere drainage of the abscess would do very little good. It is pointing now posteriorly and will open there spontaneously soon. Meanwhile the traumatism and pain of daily dressings are avoided and a brace more conveniently applied.

Dr. Goldthwaite: I reported four cases of posterior mediastinal abscess. Three died suddenly in a paroxysm of dyspnea. In one case I operated on the patient during such a paroxysm and succeeded in draining the abscess. She is wearing a brace now. It seems to me that that would be an indication, more than anything else, for the operation. The diagnosis has to be made of the child's condition from the character of her breathing. Here you have a rapidly increasing abscess. It shows plainly in the back, and it probably comes from in front of the spine.

Dr. Virgil Gibney: About two weeks ago we had a case of this kind. We had the child in a jacket. It had a sinus in the neck which was discharging a little; we had to take the jacket off one day and put on a swing. We made an opening in one side. The child began to collapse very rapidly, and, I think, within a very short time it died.

It went down quite suddenly, and the autopsy showed that there was a large mediastinal abscess that had broken into the vertebral canal, and that produced the collapse. The posterior mediastinal abscess was draining imperfectly, and that closed the canal, or nearly closed it.

Dr. Townsend: I have had one case in private practice where the patient died instantly. We held a post-mortem and found it was a posterior mediastinal abscess. In this case I would follow the advice of Dr. Goldthwaite and others.

Dr. Sayre: I had a similar case. The child looked out of the window and said good-bye to its father, and by the time the father had gone a block the child was dead.

The paper of the evening was then read by Dr. Royal Whitman: "A Report of Final Results in Two Cases of Polyarthritis in Children, of the type first described by Still."

Dr. Whitman also submitted several photographs of the cases described in his paper.

The cases were aged respectively five and twelve years, and were in the leg. In each case the onset was gradual and the process was for a time confined to a knee-joint, the symptoms of pain and stiffness being mistaken for tubercular disease. After a time practically all the joints became involved. There was accompanying extreme emaciation general hyperplasia of the lymphatic glands and enlargement of the liver and spleen. Several joints were explored and the process was found to consist in a transformation of the synovial membrane into what resembled granulated tissue. This spread in a pannus growth over the margins of the articular cartilage, eroding and destroying it.

The younger patient recovered completely after an illness of about two years. The elder died at the end of about three and a half years. In this case even the joints of the fingers and toes were involved. In both cases the spine remained free from disease.

In the case that came to autopsy the internal organs and even the mesenteric glands showed advanced ankylotic change. The joints presented the same appearance as at operation. The cortical substance of the bone and the cartilage was extremely thin. The spongy tissue was dark red in color but firm and regular in structure.

Dr. Goldthwaite: I can not tell you how much satisfaction it gives me to have Dr. Whitman present this paper to-night. It seems to me that it opens up for our consideration the large field of non-tubercular

bone joint diseases, about which there is the most pathetic ignorance at the present time in the general profession, and the solution of which comes back very largely upon the orthopedic surgeon, because such diseases can only be studied in the hands of men who have a chance to form definite clinical pictures and to study the pathology, which a general practitioner misses, and the fact that men are becoming aroused to this is a matter of great satisfaction.

The differentiation of the types of this disease in the first place, and the etiology of these cases in the second place, are problems which can not be solved at once, and no one man can solve them. It means the work of a great many observers; it means the pathologist, the chemist, and the bacteriologist working in their laboratories, so results are balanced and studied in proper proportions. It is perfectly apparent, in the work which we have been doing, that there are distinct types of these diseases. There are four types, I should say, which is as far as we have gone with our definite clinical and pathological picture. There are undoubtedly other types mixed up in these which we do not yet understand.

The two types which are perhaps the most striking at first are the types designated as rheumatoid arthritis and osteo-arthritis.

The first is a disease which comes on insidiously, takes one or two joints at first—in the hand or in the foot—the process lasting sometimes many years, until a person is badly crippled. It is a progressive disease, which does not kill of itself, but cripples, and it is a type which fills the beds in our almshouses. Primarily it begins with a swelling of the joint structures—not "inflammation," as the pathologist uses the term. It is more the atrophic type of swelling. With the swelling there is almost always an atrophy of the cartilage, which is followed by atrophy of the bone. Coincidentally with the process of healing in some of the joints after the stage of atrophy is past there may be a fresh onset of the disease in another part of the body, as may be true in tuberculosis.

I have here a large number of microscopic specimens showing the bone changes. Surprisingly enough, there is no secondary anemia as in all cases of tubercular diseases, nor the anemia of a septic process. The glands are not enlarged, nor the liver and spleen, apparently.

The next type is osteo-arthritis. There is hypertrophy of the edges of the cartilage, with a marked atrophy of the central portion. I have photographs here showing a condition of hypertrophy from the start.

That is a disease which you will find attacks a great many joints, but it is not a progressive disease necessarily, which the so-called rheumatoid disease is.

Then there is another type which we have come to observe more or less frequently recently. They were cases which puzzled us. We designated them, for want of a better term, toxemic—a group of cases which sometimes come from traceable causes and at others from no apparent cause. The X-rays which you get from these cases are different from those you get in the rheumatoid condition, and there is an enlargement of the glands—enlargement of the spleen and liver, which shows anemia or sepsis of the joints. Any number of joints may be involved. I made a diagnosis of a case of toxemic arthritis where the patient died. The autopsy showed the characteristic features of this disease, and it seems to me that the condition described by Still comes better under that class than any other. It is a condition which is not confined at all to childhood. You may have the same type in adults as in children. One case I observed in a child who had a tooth filled; a very strong, robust child. Following that, the child ran down rapidly, developed joint symptoms, and to-day presents all the appearances described by Still. The knees are affected and the neck is affected. I have seen the same thing in other cases, starting in at one joint and then involving others, and in one case we got a culture from the throat. The process went on of the same type as we have described as toxemic arthritis.

The differentiation between that and rheumatoid is a matter of a good deal of importance, and it is somewhat difficult. Dr. Whitman has reported one which should be placed in that class. The cases may go on a long time. Many get well, and frequently without treatment, so as a matter of prognosis differentiation is important.

There is the other type, that is, pure gout—chronic gout. There is usually a pure deposit of uric soda about the joints, as shown by chemical analysis. In these cases, however, there is not simply an atrophic condition, but a destruction of the bone, as I think I can show in the X-ray photograph, in which one of the joints has almost entirely disappeared. I have a series of X-rays here which will make the condition clearer. I also have plaster casts here showing the typical swelling and appearance of the wrists and arms.

Dr. Myers (the chairman): Dr. Whitman and Dr. Goldthwaite have interested us immensely by their clear and practical presentation of

this very important subject. It is to be regretted that lack of time has prevented a consideration of the treatment of these cases and the proper diet, a much-confused subject.

Dr. Sayre: I have been very much interested in these papers. It is a subject of which I am extremely ignorant, although I have been watching a number of these cases for several years, one since 1886. In one I excised the bone. The chief difficulty was in a case year before last, a small child, in which there was this great neurotic tendency—paraplegial neuritis—and neurotic disturbances of the circulation; also this ecchymosis which you see in certain nervous affections, in various parts of the body, which disappears quite rapidly at times. The case was much relieved by the application of electricity. It seems in several of these patients to be very largely a question of diet in regard to the improvement of the condition of their joints. In what way the assimilation is defective I have not been able to determine. There is also very defective excretion. I have been unable to classify these cases, and I have listened with great pleasure to Dr. Goldthwaite's diagnosis and Dr. Whitman's paper on the subject. In one case (I have not seen it in almost two years) which I had under my observation for a while, the child was brought back to me a short time ago by its father well, with the exception of one joint. It surprised me greatly. I do not know why it got well.

Dr. Townsend: The first cases reported by Dr. Whitman interested me very much. I remember some seven or eight years ago reading a monograph on a case of rheumatoid arthritis. I think the doctor said he had found only twelve cases in several years. I am sure we see that number every year at the Hospital for Ruptured and Crippled.

Dr. Whitman: I am, of course, particularly interested in the cases I have presented. I would call particular attention, first, to the fact that the disease is accompanied by a destruction of the cartilage, and second, that a stiffness of the spine is not always one of the early symptoms. These two patients went on to the end without any affection of the spine. Some of Still's cases are cases of what we may call rheumatoid arthritis. Dr. Townsend spoke of a case he had six or seven years ago where the patient is now very much improved. It is really interesting to see how these cases of pure rheumatoid arthritis, with no treatment whatever except the protection that the hospital affords, may be cured.

The Chairman: Would Dr. Whitman agree with Dr. Goldthwaite in classifying Still's cases under the heading, "toxemic"?

Dr. Whitman: I am much interested in Dr. Goldthwaite's remarks on this subject, but I do not know whether I should class them on the toxemic side or not. I should say, however, that in both of these cases the disease is confined to one joint. I am inclined to think that the symptoms are rather too slow in appearing, because in the first case the patient had this affection for months before the general affection of the joints.

Dr. Goldthwaite: I do not mean to give the impression that in the so-called toxemic type the joints became involved all at once. I meant in a comparatively few months, and new joints were not invaded. In severe cases all the joints may be involved, but I have seen cases where only one or two joints were affected. I have omitted entirely any reference to the treatment, because that is too much to undertake in a discussion of this kind, but in almost all these cases you can make the degree of crippling less by careful treatment. In many cases you can get a person onto their feet; not walking normally, of course, but so they can get around their room.

Dr. Balsley presented his apparatus for taking casts of the feet for flat-foot plates. A four-inch wide band of sheet steel or lead is bent to conform very loosely to the lateral outline of foot and ankle. A removable piece of board fits inside this. A four-inch roller bandage closes the outlet at the ankle. The foot is now placed in the box so formed; the external malleolus resting on the roller bandage supports the foot steadily while the plaster is poured around it and the casts taken in the usual way. As the board is removable, the apparatus can be used for either foot by simply turning it over, always keeping the board at the bottom.

THE ETIOLOGY OF ENTERIC FEVER IN PEACE AND WAR.*

One of the most important contributions that have for a long time been made to the study of the causation of enteric fever in armies was brought forward at the late meeting of the British Medical Association at Manchester. The paper in question, which was written by Major R. H. Firth, R. A. M. C., and Major W. H. Horrocks, R. A. M. C., is based upon a series of scientific observations and experiments carried out by them at the Hygienic Laboratory of the Army Medical School at Netley, and is entitled "An Inquiry into the Influence of Soil, Fabrics, and Flies in the Dissemination of Enteric Infection." We need not weary our readers by any repetition of what we have so frequently said about the persistent prevalence from year to year of this fever in India, where it may be regarded as endemic, or again refer to the deplorable loss of life and inefficiency to which it gives rise in almost every campaign that is undertaken, and notably so in the case of the late war in South Africa and in the Spanish-American war of 1898. In the views which we have from time to time put forward with regard to the nature, causation, and dissemination of this disease we have always taken care to guard our readers against adopting the assumption that, because enteric fever is so commonly a water-borne disease, water is the sole and exclusive vehicle for its dissemination, and that by destroying the infectious power of the intestinal discharges the disease may be surely extinguished.

It must, we think, be admitted that the exclusive advocacy of such views as those to which we are referring has, on the whole, had a detrimental influence on the progress of sanitary science. Although water is a very common medium for the conveyance of Eberth's pathogenic bacillus, there are, nevertheless, other sources of contagion which play a part, and sometimes a very prominent part, in the spread of this disease; and so far from the intestinal discharges being the only agents concerned in the spread of the disease they are but one of a series of agents. It is now recognized that instead of a patient ceasing to be a source of danger after his restoration to seeming health he may carry about in himself—in the urinary and biliary secretions, for example—the seeds of infection for months or even years. The results obtained by the investigations of Major Firth and Major Horrocks into the vitality of the typhoid bacillus in relation to soil and the transfer-

*London Lancet.

ence of the bacilli through the agency of dust, by flies, and by clothing are, scientifically speaking, highly interesting and suggestive, and, what is more important, have a direct practical bearing on army sanitation. Taken in connection with the report of the Commission appointed by the American Government to inquire into the causes of enteric fever in the United States Army, ample material is afforded for reconsidering the whole question of the prevalence of typhoid fever in armies, with the view of seeing what can be done to prevent the recurrence in future of disastrous outbreaks of this fever in forces operating in the field. It is confessedly a large, important, and very difficult subject to deal with, but that is the very reason why the sanitary organization for an army should be undertaken deliberately in time of peace. It has to be borne in mind that it is the function of the army sanitarian to determine what are the modifiable conditions in war in order to adjust his measures within practicable limits to the best advantage. Opportunities will occur of returning to this subject which can only now and within our present limits be briefly referred to; but we may safely say that the nation will never rest satisfied with the idea, however eminent may be the rank of him who originated it, that army sanitation on field service is a "fad." The duty of the War Office authorities at the present time seems to be a very plain one—namely, to commence some inquiry as to what is to be the future sanitary organization for the army.

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"NEC TENUI PENNÂ."

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AMERICAN MEDICAL COLLEGE ASSOCIATION.

In a short while the American Medical College Association will meet in New Orleans for the purpose of considering what is best to be done to elevate the standard of medical education in this country. At its last meeting three distinguished educators, viz., Prof. Dodson, of Rush Medical College, Prof. Ritchie, of the University of Minneapolis, and Prof. Wathen, of the Kentucky School of Medicine, were appointed to report on this subject at the coming meeting. It is possible for this committee to accomplish much, with the proper aid of the society. It is difficult to understand how the Association could fail to support any report that these distinguished men may agree upon, as their long experience with the management of medical colleges enables them to fully understand the needs that are so urgently demanded by the laity of this country. It is certain that they will recommend a higher standard of entrance into the freshman year of the medical colleges, as this is the starting-point on the upward grade to better medical education. It will be interesting to note the attitude of the colleges that have persistently maintained a low standard of both admission and of fees. If the higher standard should be adopted, as it most certainly will, and the State boards of health demand a higher standard, where, oh where! will the low-standard advocates be?

Current Surgical and Medical Selections.

An Interesting Phenomenon Occurring in Tachycardia. (Herbert D. Everington.) A married woman, aged thirty-six years, was admitted into the Royal Hospital for Children and Women, Waterloo Road, on August 3, 1900, suffering from articular pains and swellings which she had had for some days previously. On admission she looked decidedly ill. The face was puffy and congested, the tongue was dry and furred down the center, and the pulse was of full volume, high tension, and "bounding," the beats numbering 128 to the minute, no irregularity being noted. The temperature was 103° F. Nothing abnormal was found in the chest or the abdomen. The left knee and wrist were acutely tender and were much swollen. The patient was placed on a diet of milk and was given ten grains each of the bicarbonate and salicylate of soda, with half a drachm of sal volatile every four hours. Her condition remained much the same for some days, and on the 7th the alkaline salicylate mixture was replaced by doses of ten grains of salicylate acid and given in cachets every six hours. The diet was made more generous. Up to the 9th no undue acceleration of the pulse was noted, the range varying more or less with the temperature from 92 to 112 per minute. On the night of the 9th, however, this moderate pulse-rate had given place to one of extreme rapidity. The frequency could no longer be counted at the wrist, the pulse being too rapid and "running." By means of the stethoscope, however, over the heart, the beats could be distinguished, and were found to number 224 to the minute. No complaint was made with reference to the heart, though the patient complained of the pain in the limbs. The salicylic acid was immediately discontinued and five minims of tincture of digitalis with thirty minims of sal volatile were given and repeated every four hours. During the early hours of the morning the pulse maintained an extremely rapid rate, and was numbering 210 when the morning round was made. A prescription was ordered containing ten minims of tincture of digitalis, five minims of tincture of nux vomica, half a drachm of aromatic spirit of ammonia, ten minims of spirit of chloroform, and distilled water to make up one ounce. This was given every four hours. On the afternoon of the 10th the patient was examined by Dr. Guthrie Rankin, who found no evidence of organic disease of the heart and no dilatation whatever. The heart-beats were counted at about 220 per minute. During his examination Dr. Rankin ordered the patient to take deep breaths, and after several of these inspirations it was found that the heart-beats had dropped to 124 in the minute, or roughly a fall of 100 beats. A mixture of fifteen grains each of the bromide and salicylate of sodium was given every four hours, alternating with the digitalis mixture above mentioned. The pulse was not noticed to be unduly accelerated for several days, but the temperature remained high, averaging 100°. The bromide

was discontinued on the 18th. The patient gradually went down hill and the tongue became extremely dry and foul, sordes developing on the teeth and lips. On the 22d she presented a decidedly "typhoid" appearance. Soon after midnight on the 25th the pulse had again risen and it numbered 192 per minute. On taking some deep breaths the rapidity fell immediately to 108. On the night of September 2d tachycardia was again present—202 beats per minute—but this time the rapidity could not be reduced by deep inspirations as heretofore, nor did they have such an effect subsequently. The patient lost ground continually. On the 5th the highest rate of pulse was noted, the beats numbering no less than 234 per minute at 2.25 p. m., when the temperature was 103°. From being in an extremely critical condition the patient began to show signs of improvement, and by the 24th she was out of immediate danger. No further tachycardia was recorded. The knee and wrist improved but never returned to their natural state. The patient's general health became very much better and she finally left the hospital in December.

There are one or two extremely interesting points in connection with this case. Leaving on one side the question of diagnosis of the articular trouble, which presented much difficulty, and turning to the condition of tachycardia, the case adds further evidence to the already noted fact that alteration of intrathoracic pressure may influence attacks of heart-hurry. In the above patient the mere mechanical taking of deep inspirations was sufficient to reduce the frequency of the heart-beats by nearly 100 per minute. How this does so is not very evident, but that the dynamical alteration has such an effect is a recognized fact. Sir William Broadbent, in his treatise on "Heart Disease," states that "to arrest an attack of palpitation it is sometimes only necessary to take a dozen deliberate breaths." Again, in Dr. Thomas L. Stedman's "Twentieth Century Practice of Medicine," vol. iv, page 413, Rosenfeld is quoted as describing how a patient made the accidental discovery that after a deep breath the attack of palpitation ceased. Rosenfeld tried increased intrathoracic pressure as treatment for this condition, and with much success. Dr. T. Clifford Allbutt, in his "System of Medicine," quotes a case in which, by holding the breath in inspiration and bending down, and thereby pressing the abdomen on the thighs, the attack of palpitation was arrested. The high rate of frequency of the heart-beats is an interesting feature in the case described above, which though not as great as some that are recorded, is yet sufficiently remarkable to deserve attention.—*London Lancet.*

Special Notices.

In prescribing the products of manufacturing pharmacists, we should be guided to a great extent by the business standing of the manufacturers. No other house in the South or West has a better reputation for strict integrity than the Robinson-Pettet Company, Louisville, Ky. We do not hesitate to recommend the preparations advertised by them on third cover page, this issue.

The Treatment of Influenza and Coughs.—We excerpt the following from the Toledo Medical Compend, by David E. Bowman, M. D., Toledo, Ohio, professor of obstetrics, etc., Toledo Medical College: "The elimination of the toxins is too frequently overlooked in these cases. Formerly, in their efforts to relieve the distressing symptoms, the profession have used remedies which produced stomachic disturbances, arrest of secretions, constipation, etc. I find nothing better to overcome the congested condition in these cases than two Laxative Antikamnia and Quinine Tablets given every three hours. If needed, follow with a seidlitz powder or other saline draught the next morning before breakfast. This will hasten peristaltic action and assist in removing at once the accumulated fecal matter. Heroin hydrochloride has been so largely used for coughs and respiratory affections that it needs little or no recommendation in this class of cases, but the favorable synergetic action of this drug used with antikamnia is, I believe, not sufficiently appreciated. Antikamnia and Heroin Tablets will be found useful by every practitioner, particularly during the winter and spring months. The Antikamnia not only adds potency to the respiratory stimulant and expectorant qualities of the heroin, but it prevents the slight nausea which may at times follow its administration alone."

Owing to the great increase in the substitution of inferior and harmful remedies for those of well known and proven value, we advise purchasers, for their protection, to insist on having Celerina, and not to accept anything that is offered as "just as good," or cheaper, which unscrupulous druggists continue to offer in order to make a few cents more. You know what you want, insist on having it; if he has not got it, go somewhere else, or get him to order it for you. We think this will explain to you the necessity of getting the genuine article, in order to produce satisfactory results, for in some cases of failure it has been owing to the substitution of an inferior article, thus not only doing you no good, but even imperiling your life. But as this hydra-headed monster, like Banquo's ghost, "will not down" as long as dishonest men exist, the best way to check it is to purchase in original packages, and be sure that you get it in that form.

Pain and its Remedy.—Believing that the bar in the way of the profession, in the use of opium, is its tendency to evil after-effects, and the harum-scarum idea that a little opium will induce the habit, and those terrible concomitants (?), I wish to call their attention to a preparation that I have long been using, and have not yet seen one case in which the habit was formed, nor ever had any complaint as to evil after-effects. This remedy is Papine, a preparation of opium from which the narcotic and convulsive elements have been removed, rendering it a safe remedy for children as well as for those of mature age. Up to a year ago I always gave chlorodyne tablets and viburnum for after-pains. Then I came across a case that refused to yield to them in the time I was accustomed to have them do so, and I concluded to try Papine. Its results, to make the story short, were such that I now never give anything else for after-pains, and they yield in about half the time that was required with the above-named remedies.—J. D. Albright, M. D., Philadelphia, Pa., in Medical Summary.

THE

AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

SOME REMINISCENCES IN THE LIVES AND CHARACTERS OF THE OLD-TIME PHYSICIANS OF LOUISVILLE.*

BY T. B. GREENLEY, M. D.

In speaking of the old doctors of Louisville, I shall have to do so briefly and in as condensed a manner as the subject will permit of. I resided in the city sixty years ago, and was acquainted with some personally and others by reputation.

Dr. James C. Johnson, office Sixth Street between Main and River. Was one of the oldest physicians of Louisville. It was said by some that he was the first white male child born in the city, while others awarded that distinction to Thomas Joyce. The doctor was a prominent man in his profession, and inherited quite a large estate, including Cave Hill and Woodland Garden, besides other property. He left two children, Capt. Johnson and Mrs. Woolly, both of whom died recently.

Dr. Tompkins. Good man and physician. He resided at the Galt House for many years before his death. He was somewhat eccentric. He wore a queue of long hair tied behind. On that account he was considered "old type."

Dr. John Harrison, Seventh Street between Main and Market streets. He left here in the 30's and went to Cincinnati, and became a professor in a medical college. He stood well, both as a man and physician.

*Read before the Filson Club, Louisville, Kentucky.

Dr. G. E. Pendegrast, Market Street between Seventh and Eighth streets. Was of Irish descent and quite eccentric in many ways. He was contemporary with Dr. Middleton, a Scotchman. Sometimes they would get into an argument as to their acquirements. Dr. M. would charge Dr. P. with not having a diploma and being deficient in medical knowledge. Dr. P. would retort in his Irish brogue that Dr. M. being a Scotchman, was like a horse, partially raised on oats, and consequently only had some horse sense, and, of course, knew nothing of medicine, except what little was certified to on a small piece of paper by those who knew nothing of him personally. In speaking of the small piece of paper, he alluded to Dr. M.'s diploma. The doctor did a good practice, and made some money.

Dr. Middleton, Market and Ninth streets. He was a very clever gentleman, and stood well as a physician; was a Scotchman by birth and graduate of Edinburgh University. He did a very good practice, and acquired some property. Being a close neighbor of the eccentric Dr. Pendergrast, they sometimes, as before remarked, clashed a little about their medical attainments.

Dr. Richard Ferguson was one of the old-time noted physicians of Louisville.

Dr. J. M. Talbot, Market Street between Fifth and Sixth streets. The doctor was a general practitioner, but stood well as a surgeon in his time. I know of one capital operation he performed; the amputation of the thigh at its middle third. This was on a man at the lower end of the county, and was done in 1839. The operation was a success, and the patient lived many years, going on crutches. At this time the doctor was in partnership with Dr. Henry Wakefield, a nice gentleman and good physician. He was from Spencer County.

Dr. Theodore S. Bell, Jefferson Street between Third and Fourth streets. The doctor was a graduate of Transylvania University. Came to Louisville in 1833. He attended the first case of cholera occurring in the city. It was on Market Street, near Brook Street. He was a man of rare abilities in many particulars. It was said of him that next to George D. Prentice he had the greatest memory of any man in Louisville. He was professor of theory and practice of medicine in the University of Louisville for several years. The writer attended a session of the school 1871–72, and had the pleasure of hearing him lecture in his branch. I was somewhat astonished at the doctor's ability to recall so many incidents in the history of epidemics

occurring hundreds of years ago, without reference to notes. He never lectured from notes. He could give the dates of the epidemics, the number of deaths, and the names of the doctors engaged in their management. He was a great student, and in his office generally had many books scattered around him. But his memory was so great that if you asked him for a certain book, he would generally, without much trouble, fish out the one wanted from the general mass. He was a great theorist, and held the belief that most of our diseases were due, directly or indirectly, to the influence of malaria. Especially was this the case as respects both cholera and yellow fever. Of course, these were in addition to all the well-known malarial diseases. He was particularly fond of chickens and flowers, having the roof of his house adorned with the latter.

Many things could be said of the genius of Dr. Bell, but time will not permit to say more; only that he was a genial, pleasant gentleman. When I first knew him, in 1838, he was in partnership with Dr. Merriwether, a nice gentleman and good practitioner.

Dr. W. E. Ewing, Market Street. The doctor was a genial, clever gentleman as well as a prominent physician. He also possessed eminent business qualities, being many years one of the directors of the Bank of Kentucky. He died quite wealthy. He has a grandson, Dr. Ewing Marshall, of Louisville, who stands well as a physician.

Dr. Joseph W. Knight, Seventh Street between Market and Jefferson streets. The doctor stood well as a physician, and for years did a large practice. He practiced longer in Louisville than any other man that I have the history of. At the time of his death he had practiced in the city fifty-five years. He was a pleasant, amiable gentleman. When I first knew him, in 1838, he had a partner by the name of Baum.

Dr. William A. McDowell, Fifth Street between Green and Walnut streets. He was a genial, pleasant gentleman and fond of anecdotes. He published a little book in which he recommended the use of ardent spirits in the treatment of typhoid fever. This little work, I think, was published in the early 40's, and was the first publication, if I recollect correctly, advising the use of spirituous liquors in the treatment of typhoid. He left Louisville about 1848 or '49, and went to St. Louis, and assisted in forming the Missouri Medical College, of which he became a professor. The last time I met the doctor was at the meeting of the American Medical Association at Louisville in

1859, when he made us a pretty little speech, which was quite witty and interesting.

Dr. John Bright, Fourth Avenue between Market and Jefferson streets. He practiced here several years, and was regarded as an able physician, especially in the treatment of diseases of children. He was quite a large, portly looking man, but apparently of a melancholy temperament, but he had trouble sufficient to make him so. His wife, a member of one of the best families of Kentucky, became demented. She was a sister of the noted doctors, William and Bryan Young, of Hardin County, both of whom at different times represented their district in Congress. I recollect prescribing for Mrs. B. about 1850, and regarded her as partially demented. The doctor, I think, left Louisville about 1848, and went to Lexington. Dr. B. was an upright, honorable man.

Dr. Coleman Rogers, Market Street between Sixth and Seventh streets. Dr. R. was a man of fine physique, tall and portly, but very eccentric and rough with his patients. If they failed to comply with his directions, he would reprove them very sharply. Notwithstanding these peculiarities, he stood well with both the profession and people, and did quite a large practice. He was the father of the late noted Dr. Lewis Rogers, one of the nicest gentlemen and best physicians to the city of his day.

Dr. Henry Wakefield was a partner of the noted Dr. Talbot. He was an elegant gentleman, and stood well as a physician. He belonged to an old-time, eminent family of Spencer County.

Dr. Lucket was a partner of Dr. Johnson and one of the oldest physicians in the city. He stood well, both as a man and physician.

Dr. Thomas W. Colescott was an amiable, pleasant gentleman, and stood well as a physician. He was one of the editors of the Western Journal of Medicine and Surgery, in conjunction with Drs. Lunsford Yandell and Daniel Drake.

The old "Louisville Medical Institute" was organized in 1837, which was the era in the commencement of the great reputation Louisville has to-day as a medical center. The institute was formed by the following-named faculty, to wit: Drs. Charles Caldwell, Lunsford Yandell, John E. Cooke, Henry Miller, Jediah Cobb, and Joshua B. Flint. The three first-named gentlemen came from Transylvania University, at Lexington, while Drs. Flint and Miller were residents of the city. The first session, 1837–38, was held in the old Workhouse, before the college building was put up.

Dr. Caldwell was professor of physiology and the institutes of medicine. He was a man of fine, portly stature, six feet tall, broad-chested, and possessed as finely a shaped head as I ever looked at. He was the author of a work on phrenology, on which subject he occasionally lectured. An ancedote used to be told on the doctor that on one occasion in his lecture he remarked that there were four great heads in this country and named our great triumvirate, Clay, Webster, and Calhoun, but modesty forbid him naming the fourth. The doctor also paid some attention to mesmerism. He was a fine lecturer and pleasant in his manners. He was regarded as one of the most learned men of his time in this country. Some time before he came to Louisville he received the prize of belles-lettres in Paris, on account of his great attainments in literature. He was a student of the celebrated Dr. Rush, and attended lectures and graduated at the University of Edinburgh in the days of the noted Cullen.

During the epidemic of yellow fever in Philadelphia in 1798 he was put in charge of the fever ward at the hospital. In those days there was a controversy, as there has been since, whether or not the disease was personally contagious. The doctor was on the negative side of the question, and thought, while he was interne at the hospital, he would test the matter thoroughly. In speaking of the matter, he stated that many times he was so completely tired and worn out on account of his pressing duties that he would drop down on a bed alongside of a patient for a few moments of rest, and on one occasion he feel asleep, and on awaking the patient was dead by his side. He thought that was a good way to test the contagious nature of the disease.

In his lecture on eating, he remarked that no wonder Kentuckians were troubled greatly with dyspepsia. He was much surprised when he first went to Lexington to lecture in the old Transylvania University at the rapidity with which the people at the hotel chewed and swallowed their victuals. He said about the time he got ready to eat his dinner, some were done and leaving the table. He urged us to take plenty of time to eat, and be sure to masticate our food well before swallowing.

Take Dr. Caldwell altogether, he was a great man, mentally as well as of fine physical proportions.

"But the great man has departed!
Mourn we, uncomforted, the falling season
Of all that noble hearts have loved with awe.
Shall infant man, with inexperienced reason,
Question old Nature's universal law?"

Dr. Lunsford Yandell. Too much can not be said of Dr. Yandell's mental acquirements or his moral qualities. He was what might be termed an all-round man. He was professor of chemistry and materia medica the first session of the old Institute of Medicine, familiar with physiology, well posted in geology, and hard to beat in a temperance lecture. In his latter days he used to preach in the Presbyterian Church, and his sermons were of a high order. With all his mental attainments he possessed an amiable, lovable disposition. He took great interest in the young men in the profession, and encouraged them in every way to try to climb the ladder of eminence. In a few words, it might be said the doctor was a great and good man in every particular. If I ever loved a man outside of my kinsfolk, it was old Dr. Yandell. I never visited the city without going to his office to see him. He charged me, when I graduated, to keep notes of interesting cases and write their history and send them to him, and he would have them published in the Western Journal of Medicine and Surgery, of which he and Dr. Drake, in connection with Dr. Thomas W. Colescott, were editors. This advice was given in the spring of 1846, and I have endeavored to follow his good advice as nearly as possible. I shall never forget his kindness, and always feel thankful for the interest he took in my welfare.

"Affection knoweth naught of time,
It riseth like the vernal flowers;
The heart pulse is its only chime,
And feelings are its hours."

I attribute much of what little advancement I have made in medicine to his instruction and kindness. The doctor was elected president of the State Medical Society in 1877. He died of pneumonia in February, 1878. He left three sons and one daughter. All of his sons were members of the medical profession and became quite eminent. His widow lived many years after the doctor's decease, and was a pleasant, intelligent, noble woman.

Dr. Daniel Drake. Came from Cincinnati in 1839, and took the chair of theory and practice of medicine in place of Dr. Cooke. The doctor was a great man in more respects than one. He was a good lecturer and a great student. He took a great interest in the Mississippi Valley. As a rule, when the college sessions in the Institute closed in the spring he commenced traveling from point to point, investigating the peculiarities of diseases, and gathering statistics

for his great work, entitled "Diseases of the Interior Valley of North America." He kept up this kind of investigation for several years. The doctor possessed a pleasant, genial disposition, and was regarded as one of our greatest men. We may never see his like again. Dr. Drake returned to Cincinnati in 1849.

Dr. Charles Wilkins Short. Took the chair of materia medica and medical botany in 1838–39. He was quite a learned man. He came from the Transylvania University. He was well posted in his department. He read his lectures, and on that account was not regarded as a fine orator like some of the others of the faculty. He was an elegant gentleman of the old school. He has a grandson now practicing in Louisville; I allude to my young friend, Dr. Butler. The late Dr. Tobias G. Richardson, of New Orleans, married one of his daughters.

Dr. Henry Miller, professor of diseases of women and children, was a man well up in his specialty, and might be regarded as the father of gynecology in Louisville. He was a native of Kentucky, being born and raised in Barren County, and an elegant, genial gentleman. He was a good lecturer and very popular with the class. He left two sons, both doctors.

Dr. Jediah Cobb, professor of anatomy, was a native of New England. The doctor was one of the most congenial, elegant gentlemen I ever met. He was thoroughly familiar with his branch, and a splendid lecturer. He was of fine physique, and always dressed very neatly. On account of his great ability as a lecturer he never failed to attract close attention from his class.

Dr. Joshua B. Flint was professor of surgery in the old "Institute" for three sessions, 1837–40, when he was succeeded by Prof. Gross. He stood well as a surgeon and as a gentleman. I think he removed to Memphis.

Dr. S. D. Gross, professor of surgery, took his chair in the fall of 1841. He came from Cincinnati, where he had been lecturing on surgery for some time. The doctor was a native of Pennsylvania and graduate of the old Pennsylvania University. It would be a work of supererogation to speak of the high attainments possessed by the great doctor, for they are well known all over the civilized world. When he lectured there were no vacant seats out of over four hundred students, and the closest attention was given him.

Dr. Gross was possessed of most untiring industry, both physical and mental. He did a general practice, and in passing over the city

you would frequently meet him, or see his buggy standing at the house of a patient, and his lamp was kept burning frequently till midnight in his office. He was the author of the first work on Pathology published in this country, and the great wind-up in his writing eventuated in the publication of his mammoth work on Surgery. It can be said that he was a great writer, as well as lecturer, to say nothing of his world-wide reputation as an operator. The doctor left our institution in the 50's and went to New York, and held the chair of surgery in the university one session, when he returned to Louisville and remained several years, and then went to Philadelphia to take the chair of surgery in the Jefferson Medical College. It was with great regret, on the part of the profession here as well as the old Institute, that he left us, as he was universally popular.

But Louisville has sent several other good men to the Quaker City, among whom we might name Prof. Parvin and that elegant gentleman, Dr. Jimmy Holland, who sustained the eminence of their profession as professors. It grieves us to think of the death of Prof. Parvin, who died some three years ago, on the same day that the eminent editor of the British Medical Journal, Ernest Hart, finished his earthly career. Dr. Gross died in May, 1884, while our American Medical Association was in session at Washington City. The news of his demise cast a deep gloom over our members when it was announced to us while in session. The great surgeon left a son, Dr. S. W., who became quite eminent in the specialty of extirpation of the mammary glands. He, too, like Prof. Parvin, who went from Louisville, has followed his great father to the tomb. Dr. S. D. Gross was the last living member of my dear old faculty.

> "Silenced hearts that are heedless to praise murmured o'er ye,
> Sleep deep! sleep in peace! sleep in memory ever."

In the estimation of the writer there were never assembled together a body of greater men than my old alma mater professors. You might say, with propriety, surely there were giants in those days.

> "The waters murmur with their name;
> The woods are peopled with their fame,
> The silent pillar, lone and gray,
> Claims kindred with their sacred clay."

George W. Bayless, Walnut Street between Sixth and Seventh streets. The doctor was demonstrator of anatomy when I attended

lectures, and continued as such many years. He afterward filled the chair of surgery. He was an elegant and refined gentleman, and filled his office with ability and dignity. He was well up in his profession and a good lecturer.

Dr. David W. Yandell was a classmate of the writer, and we graduated together in March, 1846. There was some hesitancy in passing him, on account of his minority as to age, but owing to the fact that he intended spending a couple of years in the schools and hospitals of Europe the faculty allowed him to graduate. Dr. Yandell was not regarded as a close student by the class, but he rarely failed to answer correctly in the quiz class. It seemed to be somewhat of a puzzle to his fellow-students how he was able to answer so well without closer application to his studies, and they only had to conclude that he, by some means, obtained knowledge intuitively.

He was an unusually bright and intelligent young man, and possessed a natural gift of oratory. We had a little medical society in the class, and he was able to entertain us very pleasantly by his oratorical addresses on medical subjects. He seemed to prefer surgery to any other branch. He went to Europe early in 1846, and remained there about two years, mostly in Paris and London. He wrote a long communication every month for the Western Journal of Medicine and Surgery, of which his father was one of the editors. The title of his papers was "Medical Matters and Medical Men." These communications were very interesting and pleasant reading. The writer has them all, bound in the different volumes of the Journal, and appreciates them very highly.

Dr. Yandell, on his return from Europe in 1848, formed a partnership with his father at the office on Chestnut Street, where he remained during his life. Dr. Yandell became one of the foremost surgeons of the Southwest, and was appointed surgeon-in-chief of the Confederate Army in that section. In this capacity he more than met the expectations of the authorities. After the war he became professor of surgery in the medical department of the University of Louisville, which chair he held for many years. In 1872 he was president of the American Medical Association, when some of his enemies made the absurd plea of deficient qualification on account of his having been allowed to graduate before he was of age. His father soon got the trouble settled by obtaining statements from the writer, and others of his classmates, showing why he was allowed a diploma. The doctor married Miss

Crutcher, who is the mother of Mrs. W. O. Roberts and Mrs. James Buckner, two elegant and refined ladies. The mother and daughters are still living.

Dr. Thomas Lamar Caldwell, office Jefferson Street between Third and Fourth streets. He was a son of the noted Charles Caldwell, of the faculty of the Medical Institute. He was brigade surgeon in the Mexican War, 1846–47. He lost the sight of one of his eyes. He had the peculiarity of never riding in a buggy, but always rode a black horse, and was a fine rider. He always wore a smooth cap on the military order. He was somewhat reserved in his manner, but an elegant, refined gentleman. He left no children.

Dr. Lewis Rogers, office Jefferson Street. Dr. Rogers was a son of Dr. Coleman Rogers. He married Miss Thruston, daughter of Lawyer Charles M. Thruston and sister of Dr. John Thruston. He was a gentleman of very refined manners, and perhaps did as large a practice as ever any one did in the city of Louisville. He was very popular and stood well up in his profession. The writer had the pleasure of meeting him in consultation, and was deeply impressed with his medical qualifications. He occupied the chair of materia medica and therapeutics in the University for several years. He was the father of Dr. Coleman Rogers, jr.

Dr. Madison Pyles. When the writer was attending lectures Dr. Pyles was interne at the City Hospital, where he was a great favorite, both with the patients and physicians. After he commenced general practice he acquired quite a reputation as a friend of the poor, and did a good practice. He was very gentlemanly in his manners and well up in his profession.

Dr. Samuel B. Richardson, Jefferson Street between Seventh and Eighth streets. Dr. Richardson was a nice gentleman, quite popular, and stood well as a physician. He paid some attention to surgery.

Drs. Standiford and Seely, office Seventh Street between Jefferson and Green streets. Dr. Standiford did not practice long, and soon turned his attention to politics, and acquired quite a fortune. He was a member of Congress for several years. He left a widow and several children. Dr. Seely was elected jail physician, which office he filled for many years, and died while in office.

Dr. Robert C. Hewitt, office Third Street between Broadway and York Street. Stood high, both as a physician and gentleman. He did a large practice and became quite wealthy. He was a student of the

noted Dr. T. S. Bell, and married Dr. Bell's sister. He has a son who is quite prominent, and was cashier of the Bank of Louisville. The doctor lived to be quite old, and died greatly respected by a large clientele and circle of friends.

Dr. E. D. Foree came to Louisville from Henry County when comparatively a young man, but soon acquired a large practice. It was said that he and Dr. Lewis Rogers did the largest practice of any of the older physicians of their day. The doctor was quite an affable, pleasant gentleman, and of course stood well in his profession. One of his daughters married the late Dr. Bolling. The doctor filled the chair of materia medica and clinical medicine in the Kentucky School of Medicine several years.

Dr. H. M. Weatherford, Seventh Street between Main and Market streets. Had a crippled back and walked with a cane, and went greatly bent forward. The doctor was a good, clever man, and stood well as a physician.

Dr. Llewellyn Powell, office Court Place. Dr. Powell was a polite, elegant gentleman, and stood as well as a practitioner. He was at one time professor of obstetrics and diseases of women and children in the University. He left several children, but never acquired a large fortune.

Dr. Henry M. Bullitt, office Fifth Street. The doctor was an elegant, polite gentleman of the old-school style and well up in his profession. He occupied the chair of physiology in the University, and afterward the same chair in the Louisville Medical College. He became quite deaf some time before he died.

Dr. James Knapp, East Main Street. The doctor was a man possessed of great learning; was well versed in botany and geology. He did a general practice, and was an intimate friend of Dr. T. S. Bell. He lived to be quite old.

Dr. A. Von Donhoff, East Jefferson Street. The doctor was a man of fine education and a good linguist. He was familiar with entomology. He did a large practice, and was generally popular.

Dr. John Donne did general practice, and paid special attention to surgery. He was surgeon to the City Hospital for some time.

Dr. John J. Speed, office Third and Chestnut streets. The doctor was highly cultivated and very gentlemanly in his deportment, being almost a Chesterfield in this particular. He was professor in the Hospital Medical College, holding the chair of public hygiene and institutes of medicine. He was a gifted orator.

Dr. Tobias G. Richardson, Walnut Street between Sixth and Seventh streets. He was known to everybody by the name Tobe. He was a student of Prof. S. D. Gross and a son of Mr. William A. Richardson, of Louisville. The doctor practiced here a short time, and then went to New Orleans, where he soon rose to eminence in his profession. He was visiting physician to the Charity Hospital, and afterward became professor of surgery in Tulane University, when he continued until his death. His first wife was a daughter of the noted Dr. Charles Wilkins Short, late of Louisville. A terrible calamity befell his wife and two children, who were lost on a steamer which burned on the Mississippi River in December, 1866. Mrs. Richardson was on her way up to visit her parents, and was placed by the doctor in the care of my brother-in-law, Dr. J. S. Lewis, of New Orleans, an intimate friend and associate on the Charity staff. He, also, was on his way to visit his Kentucky relatives. The boat took fire below Vicksburg in the night, and more than half of the passengers were lost. Dr. Lewis barely escaped. He had no opportunity of assisting Mrs. Richardson and children, they, of course, being in the ladies' cabin.

The first time I met Dr. Richardson, after that misfortune, was at our meeting of the American Medical Association at Chicago, in 1877. When we shook hands tears ran down his cheeks. We elected him president of the Association, to meet at Buffalo the next year. The doctor married his second wife several years after the loss of his first. She was a Miss Slocumb, a relative of the old Kentucky Brashear family. She was quite a wealthy lady and of fine manners. I had the pleasure of meeting her at her home during the World's Fair. After the doctor's death in 1897, she contributed $100,000 to build a memorial addition to Tulane University in commemoration of her husband. The doctor was a very genial, elegant gentleman.

Dr. John A. Larabee was born in Maine, May 17, 1840, and received his education in the various institutions of that State, and graduated in medicine at Bowdoin College with honor in 1864. He served as assistant surgeon during the civil war, both at Fortress Monroe and at Louisville. At the close of the war he settled in the city, and by his great ability as a physician and his affable manners as a gentleman he soon acquired a front rank in his profession. The doctor was a prominent member of the local as well as the State and National medical societies. He was a regular attendant of his societies, and generally had a paper to read. He was one of the most able discussors

of papers we had in our associations, and generally took a part in such discussions. He was professor of obstetrics and diseases of children in the Hospital College at the time of his death. At the semi-centennial celebration meeting of the American Medical Association he was elected chairman of the section on diseases of children. He died on the 12th of June, 1898. He left a wife, who was Miss Hattie Bulkley, of Louisville, and two children, Mr. Jos. Bulkley and Miss Hattie Lee Larabee. The doctor's practice among children was quite large. He seemed quite devoted to the little ones. He was very popular, both among the profession and people, and his demise was generally greatly regretted.

Dr. Benjamin R. Palmer came to Louisville from Vermont. He was well educated and a graduate of Rutland College. He occupied the chair of anatomy in the University for many years. He was one of the best lecturers in the institution. He was one of the most genial and finest talkers I ever met. When I was in the city and had time to spare I frequently visited him in his office on Jefferson Street. He was the son of Dr. David Palmer, of Vermont, an eminent physician of that State, and a professor in a medical college. He was the father of Dr. Edward Rush Palmer, who, a long time, occupied the chair of physiology in the University. Unfortunately, he lost his life by an accident on the street. He was a splendid lecturer and a most genial and pleasant gentleman, who was well able to entertain his friends. He left a widow and several children, two of whom are practitioners of medicine in the city and stand well in their profession. It will be seen that the Palmer family has had doctors in four successive generations.

Dr. W. H. Bolling was from Virginia, came to Louisville when young, and married a daughter of Dr. Foree. The doctor was one of the most amiable and pleasant gentlemen I ever met. I was with him in two obstetrical cases and greatly admired his dexterity as an obstetrician. Unfortunately, he died while young.

Dr. Patrick H. Cochran stood well as a physician; was very courteous in his manners. He left the city nearly thirty years ago, and settled in Bethany, Virginia.

Dr. R. Wantyn was one of the old physicians. He lived at the Galt House. He was quite eccentric; wore his hair long and belonged to the knee-buckle tribe of old gentlemen.

Dr. Henry Kalfus was raised at Shepherdsville, and married a daughter of the noted Dr. Burkhead, of that place. He came to the

city before the war and practiced many years. He was a good physician and a nice, pleasant gentleman. The writer was acquainted with his parents, who were clever, good people.

Dr. Wm. H. Cobb, son of Professor Jediah Cobb, practiced here a while and moved to Missouri, where he died. Like his father, he was a pleasant gentleman and good physician.

Dr. B. J. Raphael was a son of Mr. Raphael, the dry-goods merchant. He studied medicine here and graduated at the University. He left here and settled in New York City, where he acquired quite a reputation as a surgeon. He held a professorship in Bellevue Medical College several years before his death.

Dr. Henry McMurtrie was one of the early physicians of Louisville. He was a man well up as a physician, as well as in literature. He published a history of the city in 1819, and gave a great deal of information of much interest.

Dr. Hall, perhaps, was among the first doctors to settle in Louisville. He was appointed tax collector in 1797; but that was not a very big job, as there were only eight hundred people in Louisville at the commencement of the nineteenth century.

Dr. A. B. Cook was a surgeon and general practitioner. He was at one time professor of anatomy in the University, and also afterward held the same chair in the Kentucky School of Medicine. I had him operate on a patient for epithelioma tumor in 1862. He was quite an expert operator. He was pleasant and gentle and manly in his manners. He has a brother, Dr. George Cook, of Indiana.

Dr. Thomas J. Griffith was born in South Wales; studied medicine and graduated in the Kentucky School of Medicine in 1852. In 1869 he was appointed surgeon in the Louisville Marine Hospital. He stood well in his profession and contributed an article to the medical journals on the use of the seaton in paralysis and epilepsy. He was a very pleasant gentleman.

Dr. Ham Griffin was the stepfather of the noted Miss Mary Anderson, the actress. He did a general practice and belonged to the staff of hospital physicians, and was also commissioner of the Almshouse. He was a courtly, affable gentleman.

Dr. Lunsford Yandell, jr., son of the great professor, and a brother to the great surgeon, Dr. D. W. Yandell. He was a general practitioner and became quite eminent in his profession.

He was professor of dermatology in the University and was a fine lecturer as well as a courteous gentleman. He had a new theory as to causes of skin diseases. He maintained that all skin diseases were due to one of three causes, to wit: scrofula, syphilis, or tuberculosis.

Unfortunately, he died in the prime of manhood. He left a widow and several children. One of his daughters, Miss Enid, is quite eminent in the art of sculpture.

Dr. Richard O. Cowling was a general practitioner and filled the chair of surgery awhile in the University. The doctor was a man of very pleasant manners and a wonderfully facile intellect. At the monumental celebration to the memory of Dr. McDowell at Danville, in 1879, Dr. Gross delivered the oration and Dr. Cowling presented the old brass knocker to the orator and gave its history, which was done in true theatrical style. The whole audience was greatly pleased and somewhat astonished at his capacity as an actor. The doctor, in conjunction with Dr. Jimmy Holland, edited The Medical News, a weekly journal, for several years.

Dr. John F. Sthreerhly, office No. 94 Second Street. The doctor came from one of the Carolinas, studied medicine and graduated in the University. He did not practice long before death claimed him as its victim. The writer was acquainted with him and was sorry he left us so young. He was quite a pleasant gentleman.

Dr. Philip Thornberry was a native of Jefferson County, of clever and wealthy parents. He studied medicine here and graduated at the University. He was quite a pleasant young man, but unfortunately, like so many others, left us in his early manhood.

Dr. Mandeville Thum practiced here before the war, joined the Confederate army, and lost his life. He was the father of Lawyer and Dr. Mandeville Thum, jr. He stood well as a physician and gentleman.

Dr. George H. Walling studied medicine in Louisville and graduated at the University. I was acquainted with him previous to his commencement of the study of medicine. We were dry-goods clerks on Market Street in 1838. The doctor did quite a large practice, was a clever gentleman and good physician. He was the father of Dr. Willoughby Walling, who represented this country for some time in Scotland as consul. The doctor lived to be quite advanced in years.

Dr. B. M. Wible came to Louisville from Bullitt County. He did a general practice. He was a surgeon in the Confederate army. He stood well in his profession.

Dr. John Hardin was a general practitioner. Held the chair of obstetrics and diseases of children in the Kentucky School of Medicine. He was a pleasant gentleman and popular in his profession.

Dr. Samuel Bemiss did general practice. Held the chair of theory and practice in the University for several years. He left here in 1866, and located in the city of New Orleans, where he became professor of theory and practice in Tulane University, where he remained until his death a few years since. He was a well-educated man, a good lecturer, and a very pleasant gentleman.

Dr. Robert J. Breckinridge was the son of the noted Presbyterian minister, Rev. Dr. Wm. L. Breckinridge. He studied medicine with Prof. Gross and graduated at the University. He did a general practice and held the chair of materia medica in the Kentucky School of Medicine. He was in the Confederate army under General Lee. The doctor died in the prime of life. He was well educated and pleasant in manner.

Dr. David Cummings came to Louisville from Bullitt County. He did a general practice. He was demonstrator of anatomy in the Kentucky School of Medicine. He stood well in his profession.

Dr. John Lloyd was interne at the City Hospital in the early 30's. He located in the county below the city and afterward at West Point, Ky., where he practiced up to 1846, when he moved back to his old stand in Jefferson, and finally moved to the city on Chestnut Street, where he died. He stood well as a country practitioner, and was an upright, honest gentleman. He left a widow and several children. His son, Clay Lloyd, studied medicine and graduated in Louisville. He practiced here after his father's death and was quite popular. He died young, leaving a wife and one child. The widow of the elder doctor died in the city recently, being over eighty years old.

Dr. J. W. Benson came here from Canada. Was professor of anatomy and dean of the faculty in the University. He was also at one time professor in the Kentucky School of Medicine. He was a good surgeon as well as teacher; in fact an all-round, well-educated gentleman.

Dr. Henry K. Pusey was born and raised in Meade County, Ky. He studied medicine under Dr. Bryan Young, of Hardin County;

attended lectures and graduated at the University in 1847. He practiced at Garnettsville for many years, when he moved to Louisville. In 1884 Governor Proctor Knott appointed him superintendent of Lakeland Asylum, which office he held four years, when he returned to the city, where he practiced until 1892, when Governor Brown reappointed him to take charge of the Asylum again. This office he retained until 1896, when on account of failing health he resigned. During his last administration a large building was added to the Asylum, constructed under the supervision of the doctor, and on account of its fine adaptability for the entertainment of the insane the authorities gave it the title of "Pusey Building," which serves as a memorial of the doctor's capacity as a superintendent of the insane. The writer had the satisfaction of visiting the institution on more than one occasion while it was under the doctor's care, and can say he was greatly pleased with the manner in which everything was conducted. He left a widow, one son, and three daughters. His son, Dr. Henry Pusey, practices medicine in the city, on Jefferson Street, and like his father stands well as a gentleman and physician.

> "He most lives
> Who thinks most, feels the noblest,
> Acts the best."

Dr. Austin Flint, sr., was a citizen of Louisville several years, and occupied the chair of theory and practice of medicine in the University. The doctor was one of our greatest men. He was the author of several works on medicine which were standards in authority. He left here and went to Buffalo, where he was professor several years, and finally went to New York City, where he held the chair of theory and practice in the Bellevue Medical College the remainder of his life. He was an able lecturer, acute observer, and pleasant gentleman. He left a son, Dr. Austin Flint, jr., who is also a professor in Bellevue. The son has proven himself to be one of the greatest lecturers and authors of the country. The writer had the pleasure of hearing both of them lecture during the winter of 1881–2.

Dr. Samuel Brandeis, born December 4, 1819, in Austria; graduate of University of Vienna, 1845. He came to America in 1848 and located in Louisville in 1852. He soon acquired a large practice. He was an active member of all local societies and frequently contributed

valuable clinical reports both to the societies and medical journals. He died in 1895.

Dr. John E. Crowe, born June 4, 1829, at Louisville. He graduated at the University in 1856. He was surgeon in one of the military hospitals during the Civil War. He was appointed professor of obstetrics and diseases of women in the University of Louisville in 1868, where he continued until his death in 1881. He was quite an orator and one of Louisville's most successful practitioners. He was often elected to the Board of Aldermen. He was a gifted writer and made many valuable contributions to the medical journals.

Dr. Edwin S. Gaillard, born in Charleston, S. C., in 1829. Was educated at the State University and graduated M. D. at the Medical College of South Carolina in 1854. The doctor came to Louisville in 1868 to accept a chair in the Kentucky School of Medicine and to open a wider field for the circulation of the Richmond and Louisville Medical Journal, of which he was editor and proprietor.

He engaged with Dr. Henry M. Bullitt and others in procuring a charter for the Louisville Medical College, which opened its doors in September, 1869, with Dr. Gaillard as professor of principles and practice of medicine and general pathology, also dean of the faculty. As editor he was warlike and aggressive; as professor he was bold and original; as dean he managed to keep up a controversy with neighboring schools. He finally fell into disfavor with his colleagues and went to New York, where he continued to publish his journal until his death in 1888. He left a widow, who continues the publication of the journal.

Dr. W. H. Galt was the son of Dr. Norman Galt and grandson of Wm. C. Galt, from whom the Galt House derived its name. Dr. W. H. Galt was professor of theory and practice of medicine in the Louisville Medical College and was a long-time city health officer. He did a general practice.

Dr. Benjamin Shumard was an accomplished scholar, but paid more attention to scientific matters than to the practice of medicine. He was well posted in geology, and was a warm friend of Dr. Lunsford Yandell, sr. They made frequent journeys over the country in search of organic remains. He was a pleasant gentleman.

Dr. J. Y. Dashiel was one of the old doctors of Louisville. He did a general practice and assisted in getting a charter for the old Medical Institute* in the 30's.

*The first medical college in Louisville was established in 1837, under the name of Medical Institute, and continued by that title until it was made the Medical Department of the University of Louisville.

Dr. R. P. Gist was contemporary with Dr. Dashiel and also took part in getting a charter for the Institute. He was quite popular as a physician and was a clever gentleman.

Dr. Cary Blackburn was a member of the noted Blackburn family of Kentucky, being a brother of the able physician and philanthropist, Dr. Luke Blackburn, who was also Governor of Kentucky; also brother of Senator Blackburn. The doctor did a general practice and was quite popular both as physician and gentleman. The doctor died a bachelor.

Dr. William H. Cheatham was a native of Washington County, Ky. Attended lectures and graduated in St. Louis. He commenced practice in Taylorsville, this State. Left there and came to Louisville in 1862. He did general practice, but paid special attention to eye troubles. He left a son, Dr. W. Cheatham, who is a specialist in ophthalmology, etc.

Dr. P. C. S. Barbour was a native of Jefferson County, Ky., being born in 1847. He attended lectures at the Jefferson Medical College. He first located in the county, where he did a good practice, but soon was employed by the Government on the Indian reservations in Dakota and Indian Territory. After serving there he was appointed superintendent of the City Hospital by Mayor Tyler, and continued to occupy that office up to the time of his decease. His wife was Miss Rebecca Tarlton, of Jefferson County, who is still living, with two children, a son and daughter. The doctor was popular both as a man and physician, and his death greatly regretted. He died November, 1898.

Dr. Luke Blackburn came to Louisville in 1872, and located at the Galt House. He opened an office on Jefferson Street between First and Second streets, where he practiced his profession until 1878, when he went to Hickman, Ky., and from there to Memphis, and from there to Fernandina, Fla. These visits were on a mission to assist in the management of the terrible epidemic of yellow fever prevailing in the South in 1878. These self-sacrificing trips of humanity awakened the sense of the people to such an extent as to call forth expressions of gratitude from various States, accompanied with many medals and thanks. That fall he was enthusiastically elected Governor of Kentucky. He will long be remembered by his people.

Dr. Middleton Goldsmith was professor of surgery in the Kentucky School of Medicine in 1875. He was connected with the United States Army as surgeon during the war. He left here some time after the war.

Dr. N. B. Marshall was a professor in the Kentucky School of Medicine, and did general practice. He married a daughter of the noted Dr. Ewing, and was the father of Dr. Ewing Marshall, of this city. His widow married Mr. Henry L. Pope, and is one of the foremost ladies in Louisville in both social and charitable circles. Dr. Marshall stood well, both as a gentleman and physician.

Dr. William Miller was a son of the noted Dr. Henry Miller, of the old University faculty. The young doctor stood well as a physician, but like his brother Edward died quite young.

Dr. David Griffith was chief surgeon on General Sheridan's staff during the Civil War. He was a brother of Dr. George W. Griffith, of Louisville, who also is a surgeon. The doctor stood well as a surgeon. He died of paralysis.

Dr. B. F. Grant, office Market Street, was a general practitioner, and stood well. He was a man of fine physique.

Dr. Edward Miller was a son of Prof. Henry Miller and brother to Dr. William Miller. He confined his practice merely to surgery, in which for a young man he was quite expert. I took a patient to him with ovarian tumor to be operated on. He performed the operation quite ably, and the patient made a permanent recovery. Unfortunately, he, like his brother, died very young.

Dr. J. H. Kellar, office Preston Street, practiced many years, and was greatly respected, both as a gentleman and practitioner. He died several years ago.

Dr. William Gilpen, Walnut Street. The doctor did general practice, and was a pleasant gentleman. He died in the prime of life.

Dr. J. N. Hall, office Jefferson Street. He was a general practitioner. He was popular both as a gentleman and physician. He died when about fifty years of age.

Dr. John Timberlake commenced practice on Floyd Street. In a short time he went to Oldham County, where he practiced many years. Then he came back to the city, and settled in the Highlands on East Broadway, where he practiced. He practiced there about ten years, up to the time of his death in 1902. He was quite successful in his practice, acquiring considerable property. He was popular and much beloved as a physician.

Dr. E. D. Wetherford, office Shelby and Market streets. The doctor practiced many years. He was a member of the Board of Aldermen for awhile. He lived to be quite old. He was successful in his profession, and died well off.

Dr. Joseph A. Ireland practiced in the city about fifty years. He was professor of diseases of women in the Louisville Medical College. He was quite a pleasant gentleman and successful practitioner. He died in 1902, leaving a widow and several children. One son studied medicine. The doctor was about seventy-five years of age when he died.

Dr. J. Oldham Ross, office Preston and Jefferson streets. The doctor did general practice. His wife was the daughter of the noted Dr. J. W. Talbot, one of the old-time surgeons of the city. Dr. Ross died when about forty years old, leaving a wife and several children. The widow is still living.

Dr. F. A. Hundley, office on Jefferson Street near Preston Street, practiced in the upper part of the city. He did general practice, and stood well, both as a physician and gentleman. He died when about fifty years old. Left wife and children.

Dr. William Lyle, office Preston and Jefferson streets. He practiced in the upper part of the city. He was quite an elegant gentleman in manners, and stood well as a physician. He died early in life.

Dr. Charles Parsons, son of the noted minister, Charles Parsons. He practiced in Portland. He lived to be about sixty years old, and left a widow and children. He was a brother of the late orator, Edward Young Parsons, who represented the city in Congress, also of the late Commonwealth Attorney, Frank Parsons. He had several other brothers, who are still living.

Dr. George N. Warner, office Second and Broadway, did a general practice. He held a professorship in the Louisville Medical College. He was quite a pleasant, affable gentleman, and stood well as a physician. He died when in his forties. He left a widow and children.

Dr. J. M. Krim, office Hancock Street and Broadway, did general practice and stood well, both as a physician and man. He was about fifty-five years old when he died. He was of German birth, and kept a drug store on Market Street before he studied medicine. He left a widow and daughter.

I submit the foregoing condensed biographical sketches of a great number of the older physicians of Louisville, who have passed away, and no doubt there were many more worthy members of our profession who have been omitted, but the writer not being acquainted with them, either personally or by reputation, and unable to learn anything respecting their standing as medical men, was compelled to omit their

names from the list herein spoken of. But the citizens of Louisville, as well as the profession, should feel proud of the reputation their old-time doctors sustained, and should hold them in pleasant memory.

It may be safely said that no people ever enjoyed the presence of a more able and better set of physicians than the citizens of the beautiful city of Louisville. But these good men have long since departed. And it is well known they were kind-hearted.

> "And genius strengthened by the immortal will
> Of doing good breaks down all barriers till
> Its purpose is achieved, its work is done,
> And the triumph for the cause of love is won."

Although the medical profession has been criticized, both on account of ignorance and want of philanthropy, it may be said truly that it is the most philanthropic and charitable of all professions, and as to intelligence will compare favorably with any set of men. The profession of medicine is the only class of men who will, for the benefit of mankind, work against their own interests. They are doing this every day in their endeavor to prevent the occurrence of disease; the treatment of which, when present, being the basis and source of their livelihood. There is no other set of men who will endeavor to destroy the means by which they make their living. If this is not philanthropy, what is it? In the way of charity they do a great deal of pauper practice. As to intelligence, they are able to speak for themselves.

In 1836 Louisville had thirty-two physicians; in 1848 she had eighty-nine, and in 1898 she had three hundred and eighty-eight. Louisville is not a mushroom city, but has grown up by regular increase from a small village one hundred years ago to a magnificent city of about 225,000 souls. In her younger days she was kept back in her growth by malarial disease, resulting from the want of proper drainage. In 1821 a terrible epidemic of malarial fever occurred, which was so severe as to resemble yellow fever and proved to be quite fatal. This was a great misfortune to the city, as it caused some of the inhabitants to leave and prevented many from coming. But it had the good effect to arouse the attention of the city authorities to the unsanitary condition of the town. The city at that time had only a little over four thousand inhabitants. The city is now and has been for many years one of the most healthy cities of the Union. She is now one of

the greatest medical centers of the country, having some six medical colleges, with hospitals attached.

In closing, I must say that I love Louisville, my old home, and its people, especially its medical men. And of dear departed confrères, I have aimed to bestow deserved credit, whose memory we cherish; and in the future we hope that never

> "With tongue and pen we battle with our brother,
> And madly strive to stigmatize each other."

MEADOW LAWN, KY.

THE PULMONARY CIRCULATION, MORE PARTICULARLY IN RELATIONSHIP TO VARIATIONS IN CARDIAC ACTIVITY.*

BY T. G. BRODIE, M. D., LOND.

Previous workers upon the circulation through the lungs have mainly confined their attention to a study of the pressure changes in a pulmonary artery or vein in comparison with the pressure records in the aorta, and from these operations they have drawn conclusions as to the general variations of the circulation through the lungs. The close relationship of the two sides of the heart to the pulmonary vessels renders it, in most cases, a matter of considerable difficulty to decide, from observation of pressure changes alone, whether or not any active change has taken place in the pulmonary vessels. Hence the observations forming the subject-matter of the main portion of these lectures have been conducted by Dr. W. E. Dixon and myself during the past two years and took their origin from the application of another method—the plethysmographic—to the lung. This method has already proved of very great value in the study of the circulation in organs on the systemic circulation, and has also proved a most valuable means of studying the circulation through the lungs under various conditions.

The operation consists in first exposing the lower lobe of the lung by the resection of two or three ribs. The lobe is then thoroughly freed up to the root of the lung, and if the object is to study the vascular changes one of two methods is adopted. In our first experiments we prevented the entrance of air into the lung by gently compressing it

*Abstract of three lectures delivered before the Royal College of Surgeons of England on February 17, 19, and 21, 1902. Reported in the London Lancet.

before inserting it in the oncometer. In this way the lobe does not expand with the ordinary air pressure used in artificial respiration. In a second series of experiments we first distended the lobe to its normal extent and then plugged the bronchus leading to the lobe by a pledget of cotton-wool soaked in vaseline, inserted by means of a long probe passed down the trachea. The lobe was then fixed in the oncometer and its variations in capacity recorded by connecting the oncometer to a piston or bellows-recorder. We have always simultaneously registered the aortic pressure by a mercury manometer. The advantages of the method lie chiefly in that it gives us at once a record of the changes in amount of blood contained within the lungs, thus showing immediately the production of an anemia or congestion of the lung capillaries. By combining the information thus gained with the pressure changes in the four chambers of the heart we can often definitely determine the nature of the change that has been produced in a more certain way than can ever be obtained from records of the pressure changes only.

Variations in the flow of blood through the lungs may be caused by changes in the activity of the right heart or in the resistance offered by the pulmonary vessels and capillaries, and to this extent the problems offered for our study are similar to those so fully studied in the systemic circulation. Whereas, however, variations in the activity of the right heart produce but small effects upon the flow through the systemic capillaries, unless those changes be very pronounced, variations in the working of the left heart produce at once marked changes in the blood contents of the lungs. As Stolnikow has pointed out, the liver acts to a considerable extent as a blood reservoir on the systemic circulation, so that the right heart may take a greater or less volume of blood from the great veins without materially modifying the systemic pressure. So the lungs play a similar part to the left heart, acting as a reservoir in which blood may be stored if the left heart for some reason diminishes its output, and conversely contains a reserve of blood upon which the left heart draws when its output increases. It is this very close relationship to the two sides of the heart which makes the study of the pulmonary circulation of such difficulty and has led many workers into considerable errors.

In these lectures we shall therefore discuss the various experiments which we have performed in the following order: (1) the alterations in the pulmonary circulation due to purely cardiac changes; (2) the altera-

tions due to variations in the systemic circulation, which may effect changes by alterations in the output of the left heart or by modification in the flow to the right heart; and (3) an examination of any changes due to alterations in the resistance offered by the pulmonary vessels.

The blood-volume curve given by a lobe of the lung in which the bronchus has been plugged in the manner described above gives the following features. There is a small increase in volume at each inflation by the artificial respiration apparatus of the remaining lobes of the two lungs, and there is a very marked volume-pulse occurring with each heart-beat. This volume-pulse is systolic in time and is therefore due to the output from the right heart.

Turning in the first instance to the effect of alterations in cardiac activity upon the pulmonary circulation we may first of all discuss the changes caused by excitation of the augmentors and accelerators on the one hand and of the inhibitory fibres on the other. Stimulation of the accelerator fibers which also usually causes augmentation, as a rule, leads to an increase in the volume of the lung and a rise in the aortic pressure. The increased volume of the lung usually persists longer than the rise in aortic pressure. In a few instances no increase in lung-volume is recorded and these cases are usually accompanied by a more marked rise in aortic pressure. Simultaneous records of the blood-pressure in the pulmonary artery and aorta show a marked rise in the former which may or may not be accompanied by a rise in aortic pressure. From these results we conclude that the nerves chiefly affect the right side. The output from this side usually shows a greater increase than that from the left: hence the blood-volume of the lung is increased. The various effects upon the aortic pressure show how variable the action is upon the left heart.

Stimulation of the vagus also gives very interesting results. With weak stimulation, resulting in much slower beat, the aortic pressure falls gradually and a marked decrease in the volume of the lung is recorded. A stronger stimulation, resulting in a much more marked fall in aortic pressure, leads to a quicker decrease in the lung-volume, which, however, is no more extensive. In these cases the right auricle pressure rises considerably, but the effect upon the left auricle is much less marked. Hence we must conclude that the action of the vagus upon the heart is more particularly felt upon the right side. The diminution in volume of the lung can only mean a larger diminution in output of the right ventricle as compared to that of the left.

The next series of changes to be studied are those due primarily to an alteration in the systemic circulation. Of these we must distinguish two groups—namely, those in which respectively a rise or a fall in the aortic pressure is produced. These may exert an effect upon the pulmonary circulation either through a change in the rate of flow of blood into the right auricle or by affecting the output from the left heart. At present the latter of these two factors has been chiefly studied.

As the simplest case we may take the effect of restricting the outflow from the aorta by partially or completely blocking the aorta at the lower end of the thorax. Waller and later observers have shown that the result of clamping the aorta is to cause a big rise in the aortic pressure, followed quickly by one in the left auricle. There is no rise in the pulmonary artery pressure unless the compression is kept up longer than about fifteen seconds. There is usually no effect upon the right auricle pressure. We have found that the effect upon the lung as observed by recording its volume changes is to produce a very marked congestion, the mode of production of which is in the failure of the left ventricle to empty itself against the raised aortic pressure. In consequence of this fall in output from the left side the blood in the pulmonary veins can not flow in normal quantities into the left auricle and is therefore accumulated in the pulmonary veins and capillaries. There is no incompetence of the mitral valves. A quite analogous series of changes is also observed when other procedures for raising the systemic pressure, apart from a direct action upon the heart, have been adopted, such as stimulation of the medulla, the vagi having been previously divided, stimulation of the divided splanchnics, or stimulation of the upper surface of the spinal cord which has been divided in the lower cervical region.

We next come to the effects produced by methods which act upon the heart as well as the blood-vessels. Of these one of the most important is suprarenal extract. This is known to cause a large rise in aortic pressure, due chiefly to constriction of the peripheral arterioles; but it also acts upon the heart, whose rate is increased and output nearly doubled. The effect on the heart, however, is complicated, if the vagi be undivided, by a marked inhibition of the heart occurring mainly during the period of heightened aortic pressure. The effect of suprarenal extract upon the blood-volume of the lung is to cause first a small diminution in volume, soon followed by a marked increase which persists during, and for a short time after, the rise in aortic pressure.

Thus the main effect is to produce a distinct congestion of the lungs. The effect upon the pulmonary blood-pressure is a rise to nearly double its original valve, commencing with, but lasting rather longer than, the rise in aortic pressure. The left auricle pressure at first falls, but rises rapidly when the aortic pressure has reached a high point. The effect upon the right auricle pressure is a gradual and slight rise following the rise in aortic pressure. From these results we may conclude that the effects are mainly due to the action of the peripheral blood-vessels in causing the large rise in aortic pressure. They are, however, complicated by the action upon the heart. The increased output observed at first explains the preliminary diminution in volume of the lung and the rise in pulmonary pressure. The later effects are due to the rise in the aortic pressure and the consequent inability of the left ventricle to empty itself. The more reflex inhibition there is produced, the more marked, as a rule, is the pulmonary congestion. These facts have an important bearing upon the question whether suprarenal extract can be advantageously used in hemorrhage from the lungs. Certainly in the doses which we have employed, and with intravenous injection, our experiments strongly contraindicate its employment for such a purpose. Whether a smaller dose, given by the mouth, so that the admittance into the circulation is much more gradual, can produce a pulmonary constriction unaccompanied by a congestion is now being investigated. Some further points in regard to the action of the extract upon the pulmonary vessels are described below.

A drug of importance to us, in that it causes a fall in the systemic pressure, is amyl nitrite. This is known to produce its main effect by dilatation of the peripheral blood-vessels. The disadvantage against us here is that we are not quite certain of the details of its action upon the heart. In the cat a small dose of amyl nitrite sufficient to cause a marked fall in aortic pressure causes a large congestion of the lung, which takes place in two stages. There is a primary and moderate increase in the blood-volume, followed by a slight diminution, and this again is succeeded by the main volume increase, the nature of the record seeming to show that we are dealing with at least two different effects. The blood-pressure changes, so far as we have at present decided, have shown only slight changes, the main one being a rise in the left auricle pressure. The effect upon the pulmonary pressure is very slight and mainly in the direction of a late rise. We think, therefore, that the probable explanation of the congestion produced in the

lung is a preliminary dilatation due to the increased flow to the right side of the heart, followed by a later effect due to the action upon the heart which is mainly expressed upon the left side. This fails to empty itself so completely and thus accounts for the rise in the pressure in the left auricle. In the dog the effect is not quite so striking. The changes are in the same direction, but are much less in degree. There is probably a much better compensation in this animal than in the cat.

Are there Vaso-constrictor Nerves to the Pulmonary Arteries? This question has been already worked at by many observers; but we need here only consider the facts brought forward by Bradford and Dean and by Francois-Franck. All these observers came to the conclusion that there are vaso-constrictor nerves. The evidence looked for by Bradford and Dean was in one of three directions. First, a rise in the pulmonary pressure out of proportion to the aortic pressure; secondly, a rise in the pulmonary pressure with no accompanying rise in the aortic pressure; or, thirdly, a rise in pulmonary pressure accompanied by a fall in aortic pressure. In one series of their experiments they excited the vaso-motor center in the medulla, having previously divided both vagi. This caused a large rise in the aortic pressure and a fairly well-marked rise in the pulmonary pressure. The spinal cord was then divided between the sixth and seventh dorsal nerves and the stimulation repeated. The aortic-pressure rise was now less than before, but there was the same rise in the pulmonary pressure. Direct evidence was also sought by stimulation of the anterior roots of the upper dorsal nerves. This caused a rise varying in amount, but never very marked, in the pulmonary pressure, accompanied at times by a fall in the aortic pressure, at other times by a rise varying with different animals and with the nerve stimulated. From experiments such as these they concluded that the only explanation of the pulmonary rise is an active constriction of the pulmonary arterioles.

Francois-Franck's main method was to simultaneously measure the blood-pressure in the pulmonary artery and in the left auricle, and he considers that a rise in the former, accompanied by a fall in the latter, must mean pulmonary constriction. In his experiments he stimulated the sympathetic chain in the thorax from the sixth thoracic nerve up to the ganglion stellatum. The usual results he obtained were a rise in the pulmonary pressure, a fall in the pressure of the left auricle, and, as a rule, a fall in the aortic pressure. On some occasions he observed a rise in the aortic pressure. In some of his experiments

he recorded the blood-volume of the lung by a plethysmographic method, and invariably obtained an increase in volume as the result of the excitation of these nerves. This is an effect the reverse to that which we should *a priori* expect, and he supposes the result to be due to the great distensibility of the pulmonary arteries. If the arterioles are constricted over the whole lung the blood would be stored in the large vessels, and he supposes that the increase in volume thus caused is more than sufficient to compensate for the diminished volume in the capillaries and veins.

Our criticism of the results of all these experiments lies in two directions. First, the effects obtained are always very small, and all observers agree that the influence of the nerves on the blood-vessels can only be of slight degree. But the main objection to these experiments is that they have not sufficiently excluded the action of the nerves upon the heart; and until this is done it is impossible to rely on experiments of this class. Bradford and Dean consider that by taking into account those tracings only in which no apparent cardiac acceleration is to be seen any changes must be due to an action upon the pulmonary blood-vessels. Roy and Adami, however, have shown that excitation of some of the sympathetic fibers running to the heart gives rise to augmentation without acceleration, and many of our experiments have quite clearly corroborated this. If augmentation takes place without acceleration the pulmonary pressure will rise because the output from the right side is increased. The aortic pressure will also tend to rise because the output from the left side is increased; the pressure in the left auricle will fall because the left ventricle is taking more per beat; and these are the effects which we think have in reality taken place in the records of these observers. The only difficulty lies in explaining the fall in aortic pressure which they have commonly obtained. Bradford and Dean experienced exactly the same difficulty and concluded that their experiments were not sufficient to decide the cause of this fall. That augmentation has taken place in many of Francois-Franck's experiments is quite clear from his own tracings, for where he includes the volume-curve of the lung there is always a quite marked increase in the volume-pulse, which can only indicate an increased output from the right heart.

Turning next to our own experiments we have stimulated the white rami communicantes of the upper thoracic nerves, the sympathetic chain itself, and the fibers from the ganglion stellatum. We have also

attempted to exclude any possible cardiac action by a preliminary division of all the branches of the sympathetic that we could find running into the heart. We have, however, found that it is quite impossible to divide all these fibers without injuring those running to the root of the lung. We have also stimulated the fibers at the root of the lung, but in this position we have only obtained completely negative results. The usual effect of stimulating the fibers leaving the ganglion stellatum is a fall in the volume of the lung, quickly followed by an increase. In some cases we recorded an increase in the volume of the lung from the start, and in a few cases, which, however, are very rare, we have observed a diminution in the volume of the lung during the whole time of stimulation. Wherever we got a diminution in the volume of the lung we invariably found an increased volume-pulse, and simultaneously a rise in the aortic pressure. We think that the whole effect is best explained by the cardiac augmentation which these results indicate, and that it is not necessary to invoke any action upon the pulmonary vessels for their explanation. In those cases in which there is an increase in volume of the lung from the start there is usually an increased volume-pulse and the aortic pressure shows in many cases practically no change, and lastly in those cases, the commonest, in which a preliminary diminution is followed by an increase in the volume of the lung the increase in volume-pulse is well marked, especially at first, and there is a decided rise in aortic pressure, followed by a gradual fall as the volume of the lung increases. Stimulation of the accelerator nerve itself, after it has left the ganglion stellatum, produces as a rule an increased volume of the lung, with increased volume-pulse. Hence we conclude that all the results that we have obtained can also be explained in the simplest manner as of purely cardiac origin, and we therefore attempted to detect vaso-constrictor nerves, if any are present, by a different type of experiment. The nerves to be stimulated having been isolated the animal was killed by bleeding; the blood was whipped and was placed in a reservoir. Meanwhile cannulæ were tied in the pulmonary artery and in the left auricle. One lung was then ligatured at the root. The cannula in the artery was then connected to the reservoir and blood perfused at constant pressure through the intact lung. The outflow was then recorded by a graphic method. We never obtained the least effect on stimulating any of the fibers leaving the ganglion stellatum, and hence we conclude that there are no vaso-constrictor fibers to the pulmonary vessels. Experiments of this type, we think, would certainly have given us a positive result had

such fibers been present, for it is easy to obtain such results with, for instance, the nerves to the vessels of a limb.

The Action of some Drugs upon the Pulmonary Circulation. We have already stated the general effects of suprarenal extract upon the lung and pulmonary circulation. We have also investigated the action of the suprarenal on the pulmonary arteries by direct perfusion. It gives us a very striking result; whereas perfusion of very dilute suprarenal extract through any of the systemic vessels causes their almost complete closure, the effect upon the pulmonary vessels is in nearly all cases exactly the opposite—namely, a markedly increased rate of flow. Only in one instance have we obtained constriction, and then the effect, though marked, was in no degree comparable to that which we should obtain, for instance, upon a limb. These experiments are, of course, of importance in considering whether suprarenal extract is of value in hemorrhage from the lungs, but our conclusions up to the present must be somewhat guarded, because our experiments have not yet sufficiently decided the action of small doses. With regard to the volume-changes produced in the lung by suprarenal extract the dog again shows a difference from the cat. The changes, though in the same direction, are very much smaller and the dilatation is more accentuated if the vagi have been previously subdivided—a result which we should naturally expect from the much greater and more prolonged rise of aortic pressure that occurs under these circumstances.

The action of nicotine is somewhat similar to that of suprarenal extract, though, as it exerts less effect upon the heart, its action being mainly confined to the peripheral blood-vessels, the results are rather simpler. Still, they are in the same direction—that is, to the rise in the aortic pressure there follows a congestion of the lung and simultaneously a rise in the pulmonary vein pressure and pulmonary artery pressure.

Pilocarpine gives interesting results in that it tends to produce systemic vaso-constriction, the effect of which is, however, obscured by the marked cardiac inhibition simultaneously produced. If the cardiac inhibitory fibers be paralyzed by atropine, pilocarpine produces practically the same results as nicotine. When given with the cardio-inhibitory mechanism intact it produces a great increase in the volume of the lung, which is due to the cardiac inhibition. As this decrease in volume takes place it must mean that the output from the left heart is less diminished than is that from the right heart. Muscarine produces the same effects as pilocarpine.

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MEDICAL EDUCATION.

In our last issue we called the attention of the profession to the fact that at the meeting, May 4th, of the Association of American Medical Colleges, Dr. Ritchie, of the University of Minnesota, Dr. Dodson, of Rush, and Dr. Wathen, of the Kentucky School of Medicine, would report as a National Committee to the Association of American Medical Colleges upon minimum requirements for admission to the study of medicine. Since then we have seen the printed report that is to be made at this meeting, which is very greatly in advance of what has been required, and we bespeak the favorable consideration of this report by all the better schools in this country.

There may be some low-grade schools conducted purely for commercial reasons that would prefer the requirements to be as low as possible, but the trend of education is in the direction of higher requirements in the professions, and nowhere is this more exacting than in the medical profession. The Association should adopt these resolutions—modified, as we learn they will be, by one member of the committee, who will in no sense ask to lower the standard of requirements, but who desires simply to make the application of the requirements more equitable, in the interest of all medical colleges. In the past there has been some excuse for tolerating low-grade schools, which were organized and conducted for nothing but to advertise the members of the faculty to the profession of the country, offering in their catalogues require-

ments, tuition, etc., equal to the best schools, but secretly offering any kind of concessions demanded, charging pupils practically no fee. These practices should no longer be tolerated, for they induce young men to attempt the study of medicine who are in no sense qualified to do so, and to impose them upon the people as doctors is inhuman in this civilized age. State boards of health should investigate closely into the conduct of medical colleges, for there are many schools that will not conform to proper requirements unless compelled to do so by the power of the law.

We are pleased to learn that our worthy State Board of Health will probably very soon consider the question of higher entrance requirements and a better curriculum, and will compel colleges to comply literally with their published requirements as to fees, curriculum, time of attendance upon lectures, etc. They will probably include all these things in the application for a certificate to practice medicine, to which the applicant will be required to make affidavit before a notary public.

We sincerely hope the Board will do this, and we feel sure that the worthy president and secretary will be seconded in their efforts by all the members of the Board. This will add greatly to the successful work of the Kentucky State Board of Health, and will meet with the universal approval of right-thinking men, for no college that has any desire to conform to proper requirements can afford to offer any objections.

THE WINTER MEDICAL SCHOOLS OF LOUISVILLE.

The sessions of the winter medical colleges are now drawing to a close. The attendance has been fair in numbers, probably larger than last year, but nothing like it has been in years gone by. There are many things to account for this, the most prominent of which is that there are two excellent spring schools here, the Kentucky School of Medicine and the Hospital College of Medicine, with all modern conveniences and equipages for up-to-date teaching, and the fact that the spring and summer is much more pleasant for medical teaching than winter, and it also enables many young men who are engaged in teaching to attend the spring schools who can not attend the winter colleges.

Current Surgical and Medical Selections.

Increase in the Medical Corps of the Navy.—The Fifty-seventh Congress in its last session provided for an increase of 150 numbers in the Medical Corps of the Navy, 25 of which are to be appointed each calendar year for six years. By the enactment of this law there is afforded to the young physicians of the country an opportunity to take service in the Navy of the United States and an assurance of the continuance of this opportunity for the next six years. The number of vacancies in this Corps occurring from retirements, resignations, and casualties average about ten a year, which, added to the 25 created by new legislation, makes 35 appointments open to ambitious young medical men yearly.

These appointments are to be made in the grade of assistant surgeon and are within the reach of any well-qualified physician between the ages of 21 and 30, who is a citizen of the United States. Examinations to determine the fitness of candidates for appointment are held in Washington, D. C., and at Mare Island, Cal., and the boards of examiners are in continuous session throughout the year. It is only necessary for any physician of the required age and citizenship desiring to enter the Medical Corps of the Navy to apply to the Secretary of the Navy for permission to be examined to insure being given an opportunity. No political or other influence is required, and the only testimonals needed are those bearing on moral standing and citizenship.

The examinations to determine the fitness of candidates for these appointments are conducted in the following order: First, physical; second, professional, and third, collateral.

The physical examination is thorough, and the candidate is required to certify, on oath, that he is free from all mental, physical, and constitutional defects. Acuteness of vision $\frac{2}{2}\frac{0}{0}$ for each eye unaided by glasses, but capable of correction by aid of lenses to $\frac{2}{2}\frac{0}{0}$, is obligatory. Color perception must be normal and the teeth good. If the candidate is found to be physically disqualified his examination is concluded. If found to be physically qualified his examination is continued as follows:

1. Letter to the board describing in detail his general and professional education.

Professional Examination.

	Written questions.	Percentages required.
Anatomy (2) and physiology (1),	3	80
Surgery,	3	85
Medicine,	3	85
Pathology (1) and microscopy (1),	2	60
Obstetrics (1) and medical jurisprudence (1),	2	60
Materia medica and physiological action of drugs,	2	80
Chemistry (2) and physics (1),	3	60
Hygiene (1) and quarantine (1),	2	80
General aptitude,		80
Literary and scientific branches,		80
Required aggregate,		750

Bandaging: tourniquets: four operations on cadaver; clinical cases (a written report being made in one case, giving history, diagnosis, prognosis, treatment, one prescription, at least, being written out in full in Latin); urinalysis (chemical and microscopical examination of one specimen of urine); practical microscopy, and recognition of five mounted specimens (histological, pathological, and bacteriological); recognition of surgical instruments.

Oral Examination. This follows the written work in each branch, and the required percentage is made up from the combined results of the written and the oral examinations.

The percentages given are not absolute, however, as losses in some branches may be made good in others, provided the standard is reached in the cardinal subjects of anatomy, physiology, medicine, and surgery.

Collateral Examination. This embraces spelling, punctuation, the use of capital letters, grammar, arithmetic, geography (descriptive and physical), languages, history, general literature, elementary botany, geology, and zoölogy. While due credit is given for a knowledge of languages and the sciences, it is not essential except in the case of physics. A knowledge of the common school branches is essential, and deficiency in this respect will cause rejection even though passing marks may be gained in professional subjects.

These examinations, while necessarily thorough and comprehensive, are simple and practical, and are not beyond the attainments of any well-educated physician. The oral and written questions are similar to those asked by the best medical colleges in examination for graduation.

The future prospects of the medical officer of the Navy, both for promotion and professional opportunity, are very bright, and the plan of enlargement of the Naval establishment already adopted and authorized, as well as that in contemplation, gives assurance that this outlook will grow even more promising.

The Medical Corps of the Navy consists to-day of the following numbers and grades: One surgeon-general with the rank of admiral (equivalent to brigadier-general in the Army); 15 medical directors with the rank of captain (equivalent to colonel in the army); 15 medical inspectors with the rank of commander (equivalent to lieutenant-colonel in the Army); 85 surgeons with the rank of lieutenant-commander (equivalent to major in the Army); 23 passed assistant surgeons with the rank of lieutenant (equivalent to captain in the Army); 56 assistant surgeons with the rank of lieutenant, junior grade (equivalent to first lieutenant in the Army), with 152 vacancies. There are 27 vacancies in the grade of assistant surgeon for the year 1903.

Assistant surgeons, after three years' service as such, will be eligible for promotion to the next higher grade—that of passed assistant surgeon—and from a study of the above table it may be observed that the small number of passed assistant surgeons insures promotion to the middle grade—that of

surgeon—after a short period of service. To illustrate, the junior officer of the grade of surgeon to-day has reached this grade after less than five years service and is in receipt of a salary of $3,000 per annum. While this is somewhat exceptional, the prospects of promotion to this grade for the assistant surgeons now entering the service are very nearly as good.

The following is the pay table of the Medical Corps of the Navy:

	At Sea.	On Shore.	Allowances per Annum.*
Assistant surgeons, rank of lieutenant (junior grade),	$1,650 00	$1,402 50	$288 00
Passed assistant surgeons, rank of lieutenant,	1,980 00	1,683 00	432 00
After five years in the service,	2,160 00	1,836 00	432 00
After ten years in the service,	2,340 00	1,989 00	432 00
Surgeons, rank of lieutenant-commander—			
After ten years in the service,	3,250 00	2,762 50	576 00
After fifteen years in the service,	3,500 00	2,975 00	576 00
Medical inspectors, rank of commander—			
After fifteen years in the service,	4,000 00	3,400 00	576 00
Medical directors, rank of captain—			
After fifteen years in the service,	4,500 00	3,825 00	720 00
Surgeon-general, rank of rear admiral,	5,500 00	5,500 00	720 00

*Only when quarters are not furnished by the government. Eight cents a mile is the allowance when traveling under orders.

The professional opportunities afforded the officers of the medical corps are very good at present, and are constantly improving. The first assignment to duty of a newly appointed assistant surgeon is usually to some one of the fourteen naval hospitals, where he remains until the opening of the course at the Naval Medical School in Washington early in October. At the naval hospitals the service is most instructive and valuable, the larger of these institutions having a capacity of from 150 to 200 beds, and at most times carrying a full quota of patients. The Medical School is essentially a post graduate school, designed to fit the young officer for the intelligent application of his professional knowledge to the requirements of the naval service, and to give him a training in certain specialties peculiarly important to naval work and in which he has not had the opportunity or time to perfect himself in his college course. The course of instruction comprises the following subjects—Military medicine, military surgery, tropical medicine, naval hygiene—its chemistry and biology—quarantine, the duties of medical officers, hospital corps drill and administration, ophthalmology, naval law, manual of the sword and extracts from tactics, instructions in signals. Bacteriology, blood examination, and the study of animal parasites form very important branches of this course, and are given in one of the most modern and fully equipped laboratories in this country. Five months are devoted to this school work, and after its completion the assistant surgeon is assigned to sea duty. Here again his work follows the line of advanced medical and surgical procedure. He is provided with the latest and best instruments of precision and operation, and is given every encouragement to perfect himself in the practice of his profession. The most

recently constructed battleships and large cruisers are equipped with hospital facilities equal to those found in most of our best organized small cities. Vessels of this type carry a crew of from 600 to 700 men, and for the care of the sick of these small villages afloat there is furnished for the medical officer a small hospital of from 20 to 30 beds, an isolation compartment, a dispensary, and an aseptic operating-room. These are equipped with every modern appliance for the prevention of disease, the care of the sick and wounded, for operative procedure, and for the prosecution of scientific investigations as far as practicable aboard ship. Other duties to which naval medical officers are assigned are those pertaining to the needs of navy yards, naval stations, receiving ships, and recruiting work. Opportunity frequently occurs also for attendance of medical officers upon the meetings of medical and other scientific societies both at home and abroad as the accredited representatives of the Navy Department and the Government.

Typhoid and Malaria.—The filtration of public water-supplies is undoubtedly an effectual defense against typhoid fever in cities; but it is a roundabout mode of dealing with the disease. The direct methods employed in the presence of other diseases whose infective materials leave the body by known routes would be just as successful against typhoid fever but for a circumstance which has often been remarked upon as discreditable to the profession. In the diagnosis of typhoid fever the American physician is a habitual defaulter. Not only is the diagnosis of frank typhoid remarkably tardy, but more than one third of the fatal cases pursuing their ordinary course pass unrecognized, and are certified as due to some other cause.

One may find in the mortality returns of the census fourteen different names for continued fevers alleged to have caused a great number of deaths, and many of these causes are returned in conjunction with accessory causes which are quite familiar as complications of typhoid fever. But there is a fifteenth alleged cause of death in the United States which far outranks the other fourteen as an index of faulty diagnosis. Malaria is charged in our mortality bills with half as many deaths as typhoid fever. The seasonal curves of the two causes correspond closely. Whenever and wherever the mortality curve of one of these diseases shows a variation from the normal, the curve of the other misbehaves in the same way. No part of the country is free from a reported mortality due to malaria, though there are large areas in the United States where malaria does not exist.

In some parts of the South the mortality ascribed to malaria exceeds that charged to typhoid. The experience of 1898 showed that while malaria was a considerable cause of disability among soldiers in Southern encampments, it did not figure appreciably in the mortality. Nearly all the cases sent to division hospitals with the diagnosis of malaria proved to be cases of typhoid fever. It would not be fair to conclude from the army experience that there

is no considerable mortality from malaria in the South, or that very much the larger part of the imputed malarial mortality of the South should be charged to typhoid fever. But one may safely say that of the reported malaria mortality of the country nineteen twentieths are due to other causes than malaria. The default of regimental surgeons in the diagnosis of typhoid fever in 1898 amounted to 49.75 per cent. The default of practicing physicians the country over is probably not less than this, and where malaria really prevails the error may be greater.

There is reason for believing that in certain parts of Maryland the recognized cases of typhoid are less than one half the number actually occurring.

A disease which is spread by incubating, convalescent, and ambulant cases, and which escapes diagnosis in 50 per cent of bed-ridden cases, does not offer a good prospect of successful control by bedside hygiene.—*Maryland Medical Journal.*

Oysters and Typhoid.—The oyster has been of late making demonstrations upon a large scale of its importance as a carrier of typhoid fever. In this country it has been held responsible for a recent large and prolonged outbreak of typhoid fever at Atlantic City. In England the infected bivalve has done so much damage that prudent people have for the time ceased eating oysters, inasmuch that the oyster trade has found it necessary to take concerted action on the subject. At first efforts were made to represent the extent of the oyster contamination as very slight, but the trade has been obliged to concede the pollution of one bed after another, until at last the oyster has a reputation so evil that legislative action is sought to rid the beds of pollution and to restore the oyster to popular favor.

The oyster trade wants to prohibit the discharge of crude sewage into tidal waters—a very one-sided proposition when the importance of the oyster trade is compared with the cost of so extensive a curtailment of the right of cities to commit nuisance.

According to the British Medical Journal one of two remedies proposed in Parliament will be applied. Either the local authorities will be authorized to examine the beds and to prevent the sale of oysters from contaminated beds, or else local authorities will be empowered to prohibit the importation of shellfish known to be capable of producing disease.

The first-named remedy places the responsibility of certifying the hygienic condition of oyster beds upon the same authority by whose act, default, or sufferance the beds may be polluted. The second remedy is not to be applied until the disease-producing power of the oysters has been shown, and leaves the whole burden of defense upon the oyster planter.—*Ibid.*

A Coroner's Comments.—A case of accidental death under anesthetics and the inquest thereupon have recently given rise to much feeling and expression of opinion among the medical men at Bournemouth. As several points of both medical and medico-legal interest are involved we may briefly outline the circumstances. A young man, who had already been recently operated upon for fluid within the chest and who had had two attacks of appendicitis within the last six months, underwent another operation for the relief of a suspected large abscess in connection with the vermiform appendix. After a few days' comparative relief another operation was found to be necessary. Due care was paid to the extremely unfavorable general condition of the patient, but Dr. Arthur Ransome, Dr. T. Frederick Gardner, and Mr. A. Heygate Vernon were of opinion after three consultations that an operation was absolutely necessary. The patient was suffering, they believed, from septic absorption and an operation might obviate this. The A. C. E. mixture was being administered prior to the operation when the patient succumbed to heart failure. The purely medical interest of the case ends here, and though we do not propose to examine this at all in detail we may remark that in a case of this sort where death occurs under an anesthetic, the patient being already near death's door from other causes, blame must not be too hurriedly or too entirely cast upon the anesthetic. The question must be asked, supposing no anesthetic had been used at all and the necessary operation had been performed, would not death equally have occurred? With the consent of the patient's friends the medical men present at this case conducted what may be described as a partial post-mortem examination. Apparently, that is to say, the existing abdominal wound was sufficiently enlarged to allow of the exposure of some perforated bowel in the region of the appendix. Within an hour of the death the coroner is informed by Dr. Gardner. The patient's friends appear to have thought that a certificate would be given and that an inquest would not be held. At the inquest the coroner threw blame upon the medical men concerned for allowing such an impression to exist. He also did not appear to have appreciated the prompt information afforded to him by Dr. Gardner. The giving of this information, of course, at once negatives any idea of a desire to avoid an inquest. The medical men naturally knew that in such cases an inquest must be held, but they did not, perhaps, make the fact plain to the parents, who had no such knowledge. It was this lack of explicitness which the coroner in his remarks at the inquest referred to as "bungling on the part of those concerned in the case." His remarks, too, on the fact of an examination after death having been made, appear in the light of the law on the matter to be unnecessarily severe. Legally, such a step, with the consent of the patient's relatives, is perfectly permissible, the only reservation being that no fee is to be paid. As an inquest, however, was bound to be held, the judiciousness of making such a preliminary examination is certainly open to question.—*The Lancet.*

Owensboro, Ky., March 12, 1903.

The Daviess County Medical Society held its regular quarterly meeting on March 10th, at the City Hall, Owensboro, Ky. Twenty-six members were in attendance.

Resolutions of respect to the memory of Dr. E. H. Luckett were read and adopted. Several of the older members made talks eulogistic of the character and work of Dr. Luckett.

The Committee on Constitution and By-laws reported favorably on those gotten up by the committee appointed by the American Medical Association. The report was adopted. The Society thus becomes a member of the Kentucky State Society.

Dr. D. M. Griffith was elected as our delegate to the May meeting of the State Society.

Only one paper was read, viz., "Smallpox," by Dr. T. W. Perkins.

J. J. Rodman, M. D., *Secretary.*

Special Notices.

Merit and Reliability With Consequent Success.—We are advised that our old friend, "The Antikamnia Chemical Company," for many years located at No. 1723 Olive Street, St. Louis, Mo., has moved into its new home, Nos. 1622, 1624, 1626 Pine Street, in said city. The new laboratory is fully equipped with all the latest chemical appliances and machinery, which afford increased and needed capacity for the manufacture of the well-known and reliable Antikamnia preparations. The company's sales during 1902 were the largest in the history of their business, and that the demand for their products is constantly growing is demonstrated by the fact that the first three months of this year show a pronounced increase of sales over those of the corresponding months of last year. In fact, it is the growth of the business which necessitated the removal into larger quarters, where the company has seventy-five per cent more space than in its old plant. The steadily growing esteem in which The Antikamnia Chemical Company's products are held by the medical profession throughout the world is due to the well-known merits of the original Antikamnia Tablets and Powder, as well as to the undoubted remedial efficacy and pharmaceutical excellence of the new combination tablets which this company has, from time to time, added to its line of specialties.

Sanmetto for Kidney, Bladder, and Prostatic Troubles in the Old War Veterans.—I ordered a bottle of Sanmetto to use in a case of prostatitis, aet. seventy-six years, a veteran of the civil war and an old pensioner. He has used two bottles besides the first one ordered and he has now completely recovered. His statement of these facts in a G. A. R. Post meeting excited an intense interest among Grand Army men and has resulted in several letters of inquiry to myself regarding the treatment of his case I take pleasure in giving this testimonial of the good Sanmetto will accomplish in these difficult cases of prostatitis, gravel, and kidney trouble among Grand Army men. I unhesitatingly prescribe Sanmetto in every case indicated.—J. A. Mead, M. D., Worcester, Mass.

THE

AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

AMŒBIC DYSENTERY.*

BY G. B. YOUNG, M. D.

Passed Assistant Surgeon, U. S. Public Health and Hospital Service.

I have no intention of taking up your time with an elaborate presentation of either the historical review, pathology, or morbid anatomy of this disease. I only intend a brief résumé of the salient points about the disease, and some clinical notes on cases recently seen in the wards of the United States Marine Hospital, at Louisville.

In the beginning, I announce my acceptance of the doctrine that the disease is a specific one, differing in causation, morbid anatomy, and to some extent in clinical aspects from other dysenteric disorders, such as the pseudo-dysentery which is often only the consequence of a very severe ileo-colitis or proctitis, and the dysentery of bacillary origin; or those cases of bloody diarrhea sometimes seen in extremely malarial sections, which yield promptly to the administration of quinine by the mouth, are accompanied by the presence of æstivo-autumnal parasites in the blood, and which, I permit myself the digression to observe, are probably due to the localization of large numbers of parasites in the capillaries of the villi. The statement of this belief obviates all necessity for a résumé of the views of the different investigators of the subject, or of a discussion of the observations upon which these views are predicated. As my remarks upon the disease are intended mainly as an introduction to the report of cases observed here, I will restrict them to a summary.

*Read before the Louisville Clinical Society, March 31, 1903. For discussion see page 288.

The cause, then, is an amœba. It seems well established that there are several amœbæ inhabiting at times the large intestine, and sometimes confounded with the true amœba dysenterica, but this latter has characteristics which serve to differentiate it from its fellows. It is a clear body, four or five times the size of a red blood corpuscle, with a very faint greenish tinge while alive and active, and grayer and duller-looking when dead. The ectosarc is clear and the endosarc granular, with usually a few vacuoles. When there is much blood in the stools it nearly always contains several blood corpuscles. As long as the examined material is kept warm it is quite active, but rapidly becomes motionless when allowed to cool.

Mode of Infection. The overwhelming mass of evidence accumulated during the past few years leaves no doubt that the disease is primarily water-borne. There are other methods of infection, but they account for only a fraction of the total cases. Handling infectious material is probably the most frequent of the secondary causes.

Predisposing Causes. Briefly, these may be any of the mental, functional, pathological, or even meteorological conditions which unfavorably affect the powers of resistance. The most frequent, however, is the occurrence of intestinal derangements of the kinds apt to produce lesions of the mucous membrane, as catarrhal inflammations of either digestive or bacterial origin.

Pathology. The characteristic intestinal lesions are small, lineal ulcerations in the colon, especially in the lower part of sigmoid or in the rectum, apparently following the line of blood-vessels or lymphatics, crossing each other at places like worms' tracks under a tree's bark, extending down into and through the submucosa, and invading the latter to a greater extent than the other coats. From this comparatively simple lesion up to extensive gangrenous sloughs there are ulcerations of all shades of shape, size, and intensity. It seems probable, however, that most of these latter conditions are the result of secondary infections, as with the coli communis, or the various pyogenetic bacteria.

Sequelæ. The most common characteristic of these, so common indeed that it is a question whether it should be classed as sequelæ or a characteristic lesion, is abscess of the liver. Kartulis found it in about twenty-five per cent of all cases that came to autopsy, and Craig found it in nine cases out of twenty-three, and it seems more than probable that a large proportion of cases have abscesses which do not develop

enough to attract attention. I have used the common phrase "abscess of the liver," but this is in a way a misnomer. The contents of the collection is not a true pus. It is a fluid containing granular detritus, cells, and amœbæ, but not a true collection of pus cells, and it is commonly without pyogenetic power.

Mortality. No definite figures can be given for the mortality; often it is low, sometimes very high. In very few diseases do so many factors seem to be capable of affecting the result. The immediate prognosis in average cases is good, but the disease is exceedingly prone to reappear.

Occurrence. It is widespread and frequent in occurrence in the tropics all over the world. It has been found in Russia, Italy, France, and other Continental countries, as well as in the United States, but its prevalence and virulence in the tropics has led to its being quite commonly called "tropical dysentery." This is unquestionably a misnomer. It now seems likely that much of the severe and more rapidly fatal dysentery of the tropics is a distinct disease, due to the bacillus of Shiga.

Very little was heard of the disease by physicians in this country until the occupation of the Philippines. There the disease threatened to become a scourge, until the medical corps of the army took it energetically in hand, and, to their great credit be it said, have not only limited its occurrence but greatly reduced its mortality.

Cases have been reported from time to time in various parts of this country, but as yet very little is known of its distribution, and there is still a very general impression that its existence in this country is confined pretty closely to the more extreme Southern States.

While this is doubtless true to some extent (the water-borne character of the organism and its rapid loss of activity on slight chilling making it quite understandable) still it is far from the full truth.

The reports of the Johns Hopkins Hospital for the four years 1899–1902 show ten cases and other cases have been reported lately, and, while Baltimore is a maritime city with a cosmopolitan commerce, these are not all from foreign or Southern localities, for McCrae stated in a discussion before the Fifty-third Meeting of the American Medical Association that some of these cases had not been outside of Maryland; and Walsh and Liberman stated at the same time that they had seen several cases in New York that had not been outside of the city. A case has been reported from Cincinnati. Dock has reported one from

Michigan, and Nietert has reported nine from St. Louis. Now, there have been over 125,000 men returned from the Philippines during the last four years, and a very considerable proportion of these have had at some time attacks of dysentery of greater or less severity, so, as relapses are common, even after months, we will probably see and hear more of this disease in the near future.

Again, we are going to hear of it because we are going to look for it, and it is to emphasize the necessity for systematic examination of the stools in all dysenteric cases that I present the report which follows.

I do not know the history of the Cincinnati cases as to the place of exposure, but in two of the cases I have to report all chances of infection, except in this immediate vicinity, can be excluded, and the four cases are the first to be reported from Louisville or Kentucky. The amœba was found in the first of these cases by Assistant Surgeon Berry, who had previously seen cases in Galveston.

A Word as to Technique. We have seen the amœba frequently in all the cases, but we have never found it in the absence of blood from the stools. Even when there are frequent, small, slimy stools, with some pain and tenesmus, we have not found it unless traces of blood were present. Other observers have found it in apparently normal stools, so that doubtless we are not as expert as we might be.

The stool should be caught in a well-warmed vessel, and the latter covered and stood in a basin of hot water. We have not used a warm stage. In a warm room, and on a previously warmed slide, the organism will live long enough for observation.

A portion of the stool, preferably one of the blood-stained flocculi, is picked up with an öse and placed upon the slide and the cover-glass pressed down firmly, so as to flatten the mass and spread out the film in a uniformly thin layer. A dry lens, such as a No. 7 Leitz, with a low eye-piece, gives the best results in finding the organism, but I like to put on an oil-immersion to study more closely. The appearance of the organism is very characteristic. It is very striking to see the clear ectosarc suddenly shoot out as if about to tear loose from the granular endosarc, which momentarily remains motionless, and then see the endosarc suddenly decide to flow out, as it were, into the new process. It is one of the easiest found and most striking of organisms.

The treatment of this disease may tax the physician's resources to the utmost in the matter of distressing symptoms, complications, and sequelæ, but the actual treatment of the disease itself can be covered

by the well-known formula, "Remove the cause and put the part at rest." A local infection of, usually, an accessible location by a living agent; the treatment par excellence is the local application of agents which will destroy the organism. Determine as near as you can the probable site of the lesions in rectum, sigmoid, or further up in colon, and give frequent enemata, low or high, of suitable agents, preferably sulphate of soda or quinine, especially the latter. Pain and tenesmus must be controlled, of course, and I usually give tannigen if the stools show much evidence of co-existing catarrhal inflammation.

Neither of these cases can be classed as at all severe; one was quite mild, but it is because the apparently slight ailment masked a really serious affection, from the standpoint of prognosis, that is, that they are of value.

E., white, native of Kentucky, aged nineteen, well-built, well-nourished; admitted October 5, 1901. Was attacked by diarrhea about three weeks ago, shortly after returning from a trip down the river, extending to just below Memphis. Had cramps and tenesmus, and at end of first week noticed blood in his stools. Is not passing as much blood now as at first, and has only about six stools a day, mostly at night. Has cramps early each morning. Temperature and pulse normal. Was put on usual treatment for intestinal disorders and improved a little.

Stool examination was made on October 8 and large numbers of amœba found, also an actively motile organism, somewhat larger than the amœba and apparently flagellated. Ordered a gram of quinine in hot aqueous solution, as a high enema, twice daily, with ten drops of laudanum. The laudanum was only temporarily necessary. Patient had phimosis. He improved rapidly, but as he had phimosis he was circumcised, and discharge delayed until November 1st. At that time his stools were of normal appearance, well formed. Careful examination failed to reveal the amœba.

He had what was apparently a relapse in the following February, 1902, but deserted as soon as he began to improve. He was again admitted, with a history of dysentery lasting some time, and a loss of almost thirty pounds in weight. He did not have many stools, five or six a day, but showed considerable prostration. Tannigen, orphol, bismuth, calomel, etc., were carefully administered, but while the stools diminished to one or two a day, and he gained flesh, they became frequent again if the diet was increased. Resource was

then had to enemata containing one gram of bimuriate of quinine, with resulting rapid improvement and discharge on August 28th. He came back February 10, 1903, with a history of a relapse beginning about a month previously, and stated that he had had one or two previously, since last admission, that had yielded readily to simple treatment. Present attack has gotten better and worse several times. Has from eight to ten actions a day, with blood and mucus in the stools. Is much thinner than when last seen, and has a troublesome cough. Stools showed amœba. Was given 0.3 gram of calomel, and after it had acted the high enemata of quinine were recommenced. By the 16th the amœba had disappeared from the stools. On the 18th he had two normal actions and his diet was increased. On February 24th he was discharged. He was then having one perfectly natural stool a day.*

W. J., white, aged thirty-nine, native of Indiana, admitted December 31, 1901. Following some headache and digestive disturbance for a couple of weeks, he was attacked during the night of the 28th with a violent choleraic attack. This was succeeded by a diarrhea—seven or eight stools in twenty-four hours, with tenesmus and cramps, and passage of blood and flaky mucus. Samples of stools examined by Assistant Surgeon Berry and by the writer, and a diagnosis of amœbic dysentery made. His abdomen was markedly distended and tender, and his liver and spleen slightly enlarged. He was put on quinine enemata and also given small does of napthol, bismuth, and ipecac in capsules. He began to mend at once, and was discharged at his own request on the 9th of January.

C. M., white, native of Missouri, admitted to hospital December 8, 1902. Has always had good health; contracted diarrhea about a month ago, which lasted three weeks, not inconveniencing the patient much until cramping set in, and he went into the Cairo Marine Hospital, staying there five days, leaving apparently cured. About six or seven days ago the diarrhea again began, and he was having as high as fifteen or twenty actions in twenty-four hours, the stools consisting of mucus, no blood being noted. About ten o'clock on the night of December 6th he was suddenly seized with a severe pain in the right shoulder; pain seemed then, and seems now, to radiate from the hypochondriac region of the same side. The pain is not felt when the patient lies on his back or left side, but any attempt to lie on the right side causes it to recur with great severity. Appetite entirely

*This patient returned in May, 1903, with a slight relapse which, as before, yielded promptly to treatment.

absent; has eaten scarcely anything for five days; the last two days has had a slight cough. The cough causes considerable pain—pain being felt in the epigastrium and right hypochondrium, and extending into the shoulder. The patient is a large, well-developed man, about six feet tall, very well proportioned; abdomen lank, rather retracted; respiration rather rapid, and somewhat costal in type; tongue moist and clean, but large and thick; heart sounds slightly increased in rapidity. On percussion, the liver is found to be enlarged, the dullness extending to the upper border of the fifth rib, and to an inch below the margin of the ribs. The left lobe of the liver can be easily palpated in the epigastric region. The left side of the abdomen is only slightly tender, the whole right side markedly so, being most marked near the margin of the ribs. Temperature 39°. Ordered rest, fluid diet, and one grain of tannigen every three hours. By the next morning the pain in the shoulder had largely disappeared, but a great deal of tenderness persisted in the hypatic.

Abundant amœba were found in stools. His diarrhea rapidly yielded to treatment. His temperature vibrated between 39° and normal for a week and then settled down to normal. The pain, tenderness, and engorgement in liver gradually diminished, and then disappeared, and on December 26th he was discharged at his own request. His blood was examined at the time of admission, and showed a well-marked leucocytosis. This was probably a case in which the formation of a liver abscess had begun but was arrested.

T. R., colored, aged seventeen, native of Tennessee, admitted to hospital December 18, 1902. Has always enjoyed good health until five months ago, when a diarrhea set in, which soon grew worse and became chronic, bowels moving frequently a dozen times a day, with passage of much blood and mucus. Was in the Evansville Marine Hospital for two weeks in August, and left apparently cured, but in October the disease reappeared, and soon became as bad as ever. During last week he had frequently a dozen actions a day, and has rapidly lost flesh and strength, and has considerable pain in the left side of the abdomen. The patient is a small, yellow negro, usually weighing one hundred and fifty pounds; present weight, one hundred and twenty pounds or less. Abdomen rather distended, except over the descending colon, where tenderness is well marked. Faint murmur heard with first sound of the heart, and rhythm is the least bit irregular. Has not been farther away than Evansville or Louisville for over a year. The origin of infection therefor is local, either in this city or in

this section of the country. On the 19th the stool was examined, and consisted of about two tablespoonfuls of bloody, gelatinous mucus, containing numerous amœbæ, motile and non-motile.

Put on usual treatment, as above, enemas being given through tube while patient was in knee-chest position. His improvement was rapid, but he was discharged December 18th, before complete recovery. At that time his liver extended to about two inches below border of his ribs. In this case, as in the second one, the site of infection can be definitely limited to the immediate vicinity of Louisville.

Since the above was written, the first-mentioned case has again been under treatment, and I have seen two other cases, one being in hospital at the present time. It is therefore evident that the disease is a very common one in this locality.

LOUISVILLE.

THE IDENTITY OF NERVE FORCE AND ELECTRICITY.*

BY J. EMMET O'BRIEN, M. D., SCRANTON, PA.

There has been in recent years such advance by physiologists in knowledge of nerve mechanisms, though not of nerve force, and such advance by electricians in knowledge of electricity in its protean phases, that, I think, the view of the relation of nerve force to electricity ought to be taken up anew by physiologists and restudied in the light of modern electricity. Advances by physiologists appear in minutely studied anatomy of neurons, relaying nerve mechanisms, conduction paths, terminal mechanisms, etc., and advances in this direction by electricians have been in better knowledge of the electric phenomena of cables, learned since physiologic views of the electrical phenomena of nerves became rather arbitrarily fixed; of fine currents and the wide field of induction, as revealed by the telephone; new light on the merely relative value of insulation; the phenomena of high frequency currents and their apparent reversal of electric law in insulation; storage or secondary batteries; electric relays, repeaters, transformers, microphones, terminal mechanisms, etc., and lastly electrolysis and electrochemistry.

Priority as to this Theory. Noting the analogies between nervous and electric mechanisms revealed by the advances of recent years in the separate fields of physiologic anatomy and electricity, I affirmed the

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Pathology and Physiology. Reported in the Journal of the American Medical Association.

identity of nerve force and electricity in a paper entitled "Analogies Between Nervous and Electrical Mechanisms: What is Nerve Force?" to our county and State medical societies in 1900. On account of the importance of the subject, and because the same conclusion has since been reached through other paths by Professors Loeb and Mathews, I again present it, with some further studies. The lay press has, as you are no doubt aware, given entire credit for originality, not only in methods, but as to scope and conclusions, to Professors Loeb and Mathews. They are entitled to great credit for methods in arriving at the identity of nerve force and electricity. But it is not the lay press but scientific societies and journals that ought to adjudicate the question of originality in method, scope and conclusions; and so to you I leave it.

The Speed of Nerve Impulse Transmission. In reviewing works on physiology I have not found reasons given for the usual statement that nerve force is not electricity. I presume that the supposed slow speed of nerve force, the apparent want of insulation, of continuous circuits and of galvanic elements in nerves have been the principal objections. If there are other, better reasons I am anxious to know and acknowledge their validity. It does not appear that any very decisive experiments indicating slow speed of nerve impulse have been made since those of Du Bois Reymond and Helmholtz, though theirs have been repeated by many. Although we have since learned much about electricity, these experiments appear to bind opinion still. These experiments were made and interpreted before much was known of the electric phenomena of cables; before the Gramme ring made electric power possible; before quadruplex telegraphy; before Reis invented the telephone or Bell perfected it; before Gray showed the harmonic duplex, or Edison perfected electric light, invented the phonograph or developed the miracle of the microphone discovered by Hughes in the variable resistance of carbon; before wireless telegraphy and the Röentgen ray; and before Tesla had revealed the apparent reversal of electric law of insulation by high-frequency currents. They were made before neuron anatomy was known. Charpentier, repeating the Reymond-Helmholtz experiments and ingeniously varying them, succeeded, according to the *Revue Scientifique*, in demonstrating about a year ago—that is, about a year after my first paper—that nerve force is electrical. While his conclusions favor the contention of my papers, I think that, with all other laboratory experiments so far made, they are not above criticism.

All these experimental data for and against the electric concept are so far, I think, inadequate. You test a nerve cable at different points with depolarizable electrodes and, from the indications of a capillary electrometer, say that nerve impulse has a speed of only 30 meters per second. Does this test the normal physiologic currents of a nerve or warrant the conclusion as to speed? I think not. You apply the electrodes to the cut surface of a nerve cable, or of muscle, and get electric manifestations. You irritate a nerve and note the time of muscular contraction. Do any of these experiments directly measure normal currents or indicate their speed? I can not think so. The most that can justly be said for them is that they prove the presence of electricity in nerve and muscle. Suppose we applied precisely similar tests to a telephone cable or an ocean cable, we would get various electric indications and might call them cable impulses, negative variation, cathodic closing, cathodic block, etc., but would not be fairly measuring the speed of normal cable currents. I think it is safe to say that the speed of the normal current in nerves has never yet been measured unless we consider the first part of the double current observed by Charpentier to be such. The *Revue Scientifique* describes this phenomenon as follows: "A short electric excitation produces a double transmission on the part of the nerve. One part is transmitted almost instantaneously as in an ordinary conductor." In experiments on the speed of sensory impulses, as well as motor, the time of relay and terminal mechanisms will have to be estimated and deducted. The fact is, I believe, that the experiments relied on as determining the velocity of nerve current, while ingenious, are relatively coarse, clumsy and inadequate for the gossamer tenuity of the neurons and the fine electric currents they normally evolve and transmit. We need finer experiments than these, and on living nerves, to demonstrate the normal currents. Tesla, in 1900, announced an electric invention sensitive to the contraction of a muscle merely in the same room with it. This may indicate the direction of hope for methods fine enough for the demonstrations that we need.

But there is other evidence: There is available a series of what we may call natural experiments involving speed of nerve impulse which have not been studied to their logic conclusion in that regard, although physiologists have taken note of them in regard to fatigue, etc. I refer to the cases of rapid muscle movement in man, animals, birds and insects. It seems to me that the wing vibrations of insects, running up into thousands per second, invite study and imply at a glance greater

speed of nerve impulse than the conventional figure. The pianist's movements have been noted but are complicated. Scripture of Yale is the latest to make some tests of fatigue, not speed, in key tapping by non-experts. I have made a study of a more rapid movement than that of the pianist's, who uses ten fingers and many muscles. The expert telegrapher in speed contests uses the same flexors and extensors of the hand throughout. Having to move his key through the smallest possible space he attains a speed of 54 words per minute. This gives a well-attested average of 11¼ flexions and 11¼ extensions, or 22½ vibrations, of the hand per second, sending the mixed Morse characters of average press words. Some of these characters are dots, as the letters e, i, s, h, p, and the figure 6; 1, 2, 3, 4, 5 and 6 dots respectively. As the dot is shorter than the dash or the space, it is made by motions faster than the average of 22½ vibrations per second attained in sending the dots, dashes and spaces. Experts think twice as fast, or 45 vibrations of the hand per second. This means a rate of 22½ contractions of the flexors and 22½ contractions of the extensors per second for the dots, with an equal number of muscular relaxations. It does not seem probable that a nerve impulse is traveling down the line to the flexors while the extensors are contracting, or vice versa, so that it seems fair to divide the time between the two motions, leaving half a second for 22½ impulses and flexions, and half a second for 22½ impulses and extensions. The length of nerve from brain to forearm may be about 30 inches. This means that not only does a normal nerve impulse travel 30 meters per second, but that over 30 impulses pass over the same meter of nerve per second, which is a different thing. Some physiologists admit the probability that each muscle contraction is maintained by a series of nerve impulses like those of the induced current used to experimentally tetanize a muscle. If that is true, and I am inclined to believe it, then our 30 impulses per meter, or rather 45 impulses per ¾ meter, per second, have to be largely multiplied. But if you reject the view of series-impulses and insist on a make and break current the time of muscle contraction will have to be deducted to leave the time of the nerve impulse which induced it. Muscle action is a visible, tangible, mechanical, time-consuming phenomenon. Where the time of a single nerve impulse and a single muscle contraction is to be divided how much shall we apportion to the mechanical action and how much to the flight of the nerve impulse which induces it? Until this is accurately determined I can only conceive the relative time to be the same as that occupied by

the electric current traversing a conductor and that occupied by a armature, or a muscle, in responding to its call. But in any way that this problem can be figured it shows that normal nerve impulses travel faster than 30 meters per second. In this calculation I have not doubled the length of current path for a return circuit, but that possibility should not be lost sight of.

Normal nerve force is not only, as I believe, vastly faster than has been supposed, but electricity may be much slower in action than its well-known maximum velocity. There is a lag in cables due to capacity, inductive static charge and the electric reaction of armor. Nerves are cables although they appear to be often treated in experiments as if they were single uninsulated conductors. There is a perceptible lag in poorly insulated land lines in wet weather due to escape, short-circuiting, etc. So, in comparing electricity and nerve force the minimum speed of electricity should be considered. It may be further reduced by adjustment of relays, repeaters, condensers, terminal mechanisms, etc. I have thus endeavored to show that there is no such gulf between the speed of electricity and nerve force as has been supposed. In both cases the velocity may be materially affected by conditions and mechanisms. It seems to me that further investigation and experiment in this direction by well-equipped physiologists will fairly meet the principal objection to the electric concept.

Nerve Insulation. The telephone threw a flood of light on induction and insulation. When, on the telephone line through which I first heard speech, I also read the Morse of neighboring telegraph lines I realized that induction occupies a wider zone than had been previously dreamed of. When telephone currents came through lines so poorly insulated or badly grounded that the telegraph would have been mute I realized that insulation is indeed merely relative, and what we now know of high-frequency currents has further enlarged this view. At one time it was supposed that nerve force could not be electric because the nerves were not insulated as in glass or gutta-percha. We now know that less insulation will suffice as for fine telephone currents.

Nervous and Electric System Analogies. The analogy between a single axone with its myelin sheath and an electric conductor with insulation is so obvious that I will not dwell on it, but will have something to say on insulation further on.

The analogy between a telegraph or telephone cable and a nerve cable armored with its sheath and containing numerous axones, each

with its own myelin covering, is still more striking. The use of both is the same—communication, or the transmission of force.

Nerve and electric units will be compared further on in this paper.

The analogy between nerve relays and electric relays is most significant; their purpose is the same, their mode of action is similar; there is variety of form in both, more apparent in electric relays because they are more familiar and more easily dissected.

Nothing can be more wondrously analogous than the multiple switch-boards of the spinal cord and higher centers with those of the telegraph and telephone. Analogies may be treated in multitudinous terminal mechanisms of electric and nervous systems, and at both termini, that is, at sending and receiving ends of the circuits. We find analogy and, I believe, identity in the form of force energizing nervous and electric systems. We find, I believe, analogy in the speed of this force. We find more than analogy in the ensemble of force, velocity, conductors and mechanisms. We find identity of plan, purpose and use in nervous and electric mechanisms.

A galvanic cell no larger than a cartridge shell may work an ocean cable. The simplest concept of an electric unit is such a cell with a conducting circuit. Electric systems are built up of such units. The simplest concept of a nerve unit is a nerve cell: its dendrites, axones and collateral branches. The whole nervous system is built up of such units and these neurons evolve, transmit, repeat to each other and exchange through multiple switch-boards the impulses necessary to the complex system of communication in the living body. The analogy between nervous and electric units is not merely in appearance, there is identity of purpose and use, namely, to generate and transmit force. In the electric unit the force is electric. In the neuron it gives electric manifestations as shown by the electrometer. Why is it not electricity? The gymnotus and some other fish produce and use electricity on the large scale as a defensive or offensive force; their electric cells are probably storage batteries. (Storage batteries do not retain or contain the electricity pumped into them; by it they are only placed in the chemical position to produce electricity. They would be better called secondary batteries.) If these fish produce electricity in organic cells and operate it through their nervous mechanism for purposes of warfare, it must be admitted that nature can evolve electricity in organic cells and utilize it for peaceful purposes in the domestic economy of animals. She seems to have taken great care to provide a fine and complex mechanism for it. Nature's technic is not meaningless.

There have been cases of excessive production of electricity in human beings. Physiologists find in nerve cells two substances stainable respectively by acid and basic dyes ; this indicates galvanic possibilities. Barker, in his great work, "The Nervous System," says that he rather favors Von Lennhosek's view, as follows :

"We can very well conceive of a variety of excitation, which, starting from the cell, perhaps even from the nucleus, streams constantly through the axone and in it in some way, perhaps by a process comparable to electrolysis, maintains the chemical conditions suitable for the assimilation of the nutritive juices."

If eminent physiologists can conceive this, can we not conceive a fine current of electricity ; not enough to work an Atlantic cable, nor needing a mammoth battery so vast as a gun-cap to produce it, but of sufficient e. m. f. to work a nerve cable a few thousand miles shorter and needing nerve cells proportionately small to generate it? True, the physiologists refer to trophic processes, but if we conceive such a current for nutritive purposes why not for the obvious and appropriate purpose of communication ?

If we take an electric unit and place an electro magnet, chemical paper, any one of a hundred terminal mechanisms, say a muscle, in the circuit, the kind of work done will depend on the mechanism of the terminal. The same is true of the nerve unit and argues that the communicating force is the same. It will suit my rude notions of these analogies better and make my conception of them easier if you can admit the existence of complete, or return, circuits. Recent investigations show that not only are there probably two filaments sent to each terminal organ, but every axone has numerous collaterals. Groups of cells have intimate relations, and connections are, according to the neuron concept, contacted by variable resistances ; besides these paths there are general return circuits possible, like in the telegraph and telephone. Endowed with motility the dendrites make contact by different paths for the nerve current through the nerve centers, thus doing automatically what the operator does at the telephone switchboard when she connects different subscribers. The analogy may seem even closer than this in the case of automatic telephone exchanges requiring no operator, but I do not mean now to suppose electromagnetism in the nerve repeaters, but rather that their elements react on each other like galvanic elements in a battery or, by induction, like condensers, transformers, etc. In alternating circuits the transformer repeats from one line to another

and converts the current to a higher or lower voltage. Every induction coil is a repeater. The electric condenser relays, retards and intensifies discharge. The effect is varied if the plates approach or recede ; doubtless the same is true of the nerve processes.

The question of insulation is important to the electric concept. There is probably no absolute insulation anywhere ; it is relative ; a matter of degree. Let me illustrate : A man was killed on a lamp pole by an alternating current of 2,800 volts. I traced the current from the wire through his spur, body, hands, to the metallic braces of the mast-arm, where it divided, part going down the pole and part through the metallic mast-arm and manipulating rod to a spike in the pole within ten feet of the ground, thence by the pole to the ground. On testing the escape through the pole by inserting an electric bell wire in it a few feet from the ground and grounding the other end of the bell circuit the escaping current rang the bell. In military telegraph experience during the Civil War I have not only worked successfully through badly insulated lines, but through some grounded intentionally for obstruction. A portion of the first Atlantic cable, used across Chesapeake Bay in 1862, furnished me varied experience in poor conduction, bad insulation and slow work. With the telephone when the old ground return was used I have heard speech when the line sometimes lay on the ground. With such a wire of twenty miles so badly insulated and grounded that speech became indistinguishable in the receiving diaphragm I have yet kept up communication by the simpler Morse signals through the more sensitive telephone mechanisms. Communication has been had through a mile or more of water not insulated from the earth which formed the other side of the circuit ; this by means of the Morse language and telephone instruments. Wireless telegraphy scorns insulation. Whatever theory others may have of it, mine is that there is a complete circuit, the earth forming one side of it, the atmosphere the other, and Marconi has worked it across the Atlantic without insulation. So, I say electric insulation is merely relative; the degree required depends on the kind of current, the purpose and the mechanisms used. If nerve force is not electricity, what other form of force is it that could be better kept insulated in the axones?

In considering insulation, relays and switching, I quote the following from Lombard in the American Text-book :

> The axis-cylinders of the many fibers which run side by side in the nerve trunk are separated from each other by the neurilemma and, in the case of the medullated

nerves, by the myelin substance as well, so that there is not even contiguity, much less continuity of nerve substance. Thus the fibres of a nerve trunk, some afferent and others efferent, though running side by side, conduct independently of each other. For example, if the skin of the foot be pricked, the excitation of its sense organs is communicated to sensory nerve fibres, and is transmitted along them to the spinal cord, where the stimulus awakens certain groups of cells to activity; these cells in turn, by their branches, the motor nerve fibres, transmit the excitation down to the muscles of the legs, which . . . contract and withdraw the foot from the offending irritant. The sensory and motor nerves concerned in this reflex act run for a considerable part of their course in the same nerve trunk, but the sensory impulses have no direct effect on the motor nerve fibres, and the roundabout course which has been described is the only way by which they can influence them. It is probable that isolated conduction by separate fibres and their branches holds good within the central nervous system as elsewhere, otherwise we could scarcely explain the localization of sensations or coördinated movements. It is possible that within the central nervous system the neuroglia may act to secure isolated conduction.

This is an admirable description. What is this system of conduction and isolation for? What force is it intended to convey? Can it be anything but electricity? There is said to be more than 50 per cent cholesterin in the solids of gross nerve tissue; it is probably mostly in the myelin sheath; it is an insulating substance; the conductors are very small, 1-1200 of an inch in diameter and smaller; the current needed is very fine if a battery of percussion caps may work an ocean cable. Nature has taken such exquisite care to keep these myriad conductors separate as she weaves them in skeins and tracts and plexæ in their course through her multiple switchboards that I can conceive the force they carry to be none other than electricity. Please note the apposition of axones of opposite polarity, so well described by Lombard, and which is found quite general throughout the nervous system, and compare it with the ingenious method of transposition of wires by which electricians have successfully endeavored to neutralize induction in telephone cables and air lines. In this, as in many other things, they seem to have unconsciously imitated nature, and I have no doubt that the decussation and transposition of conductors has, in part, the same intention and the same effect in both nervous and electric systems: namely, to neutralize induction.

The sympathetic system is peculiar as to insulation; its axones are generally unmedullated, but they have sheaths. Gotch and Horsley found larger electric currents in non-medullated than in the medullated nerves, explained by Lombard by the fact that non-medullated nerves contain a

greater number of axones than medullated nerves of the same size. The sympathetic system has a general function to perform: to maintain the tonicity of involuntary muscles and influence secretion. Compared with the cerebro-spinal system I regard it as a storage, or secondary, battery and practically monofunctional. In that view it is unnecessary that its axones should be so perfectly insulated from each other as are those in the central system where the individual circuits have to convey special messages like private wires.

I traced analogy of mechanism and identity of function between tactile papillæ, Meissner's corpuscles, *tastzellen* and other nerve beginnings, and electric variable resistances, microphone transmitters and other sending mechanisms, some of which are almost as sensitive to the slightest compression as are the nerve organs. Electric conductivity, or its opposite, resistance, is varied enormously by the slightest pressure in the Blake, or long-distance transmitter, and the coil of nerve fiber in one of these nerve-sending mechanisms seems adapted to the same purpose and, indeed, fulfills it whether you admit that nerve force is electricity or not. The touch of a hair is appreciated by the microphone and by the nerve key; electric conductivity is varied in the microphone circuit sufficiently to affect an electro-magnet and translate the impressions into audible sound by the vibrating diaphragm; electric or nerve conductivity is varied in the touch corpuscle sufficiently to send a current through the nerve relays to the sensorium. I can not conceive any form of force that would respond to these mechanisms in either case but electricity.

Permit me to quote an occasional line of description from your latest text-book, especially from Barker's admirabe work, and to flash a little electric light on it as we pass. Barker says: "A single neuron of one system is by virtue of a number of end ramifications able to enter into conduction relations with a number of neurons in the next higher system, . . . and per contra the terminals of a larger number of axones of one system may be arranged to influence only a small number of neurons of a neuron system of the next order." This in the light of electricity describes a multiple relay system of transformers through which not only signals are repeated, but force is diffused or concentrated. In other words, step-up or step-down transformers changing the e. m. f. of the current.

"Cutaneous sensory fields overlap" (Barker). That is, they are herringboned by nerve filaments reaching neighboring segments of the

spinal cord, like two or three telephone systems in the same town and having the same subscribers, so that injury to one conductor will not prevent the subscriber, say a tactile push-button, from ringing up Central.

"Four qualities of sensation are mediated by the skin and apparently by specific sense organs, cold, warmth, touch and pain." (Barker.) This does not mean that the sensory nerves need differ from each other, nor from motor nerves except in polarity; nor that the force traversing them need be anything but electricity to convey these different impressions. The difference is in the terminal mechanism. The same sort of wire, the same electricity translates, conveys and reproduces musical tones, the composite vibrations of articulate speech, the Morse language, handwriting, print, pictures, light, heat, the X-ray, and so on, all depending on the terminal mechanism.

"A centripetal impulse, originating at the periphery, reaches the primary end station of the sensory neurons inside the central nervous system after passing through only one neuron." (Barker.) That is, it reaches the suburban exchange in the spinal cord, where the dendrites and cells that represent the Hello Girl automatically make the connections for local and long-distance communication.

"It was long thought that these peripheral end organs contained ganglion cells, but that view," says Barker, "has been proved to be false." This, to me, means that the battery is not in the touch organs of the skin, etc., but is in the individual neuron; in fact, in the local central, where it ought to be; and these end organs, whether tactile papillæ, platelets, free endings, Ruffini's or Pacini's corpuscles, end bulbs of Krause or others on the sensory side, are sending mechanisms; keys, push-buttons, variable resistance transmitters, etc., such as we find in telephones, cables, telegraphs, electric bells and the like; and they operate in the same way.

"The number of nerve fibrils in ordinary epithelial structures is enormous. It would appear that almost every epithelial cell stands in contact relation with one or more nerve fibrils, and perhaps this may be true of all epithelial cells." (Condensed from Barker.) This shows a distribution of conductors sufficient for the phenomena of sensation to be electrical.

Let us glance at a point or two on the motor side. "Each of the separate muscle fibers is supplied by at least one nerve fiber, and under normal conditions only acts when stimulated by the nerve." (The

American Text-book.) On this point I said, in my paper to the Lackawanna County Society in May, 1900, that "The fact is, I believe, that every muscle unit is surrounded by an electric field of force, disturbance of which causes it to contract; and the same is probably true of every protoplasmic unit." Thus anticipating Professor Loeb's announcement on that point by nearly two years.

"The motor nerve fibers to the muscles terminate in end plates." These motor terminal organs I regard as nerve electrodes which distribute and retard the current. One more word about retardation. For an impulse from toe to brain and back to muscle there are three to ten relays from neuron to neuron, and at different levels in the switchboard of the cerebro-spinal axis such an impulse is switched across to the motor side or co-ordinated. These relays, conditions of insulation, electric reaction of cables, galvanic elements in nerves; resistance in conductors, relays, end plates, etc., all these factors are concerned in the time element of nerve conduction, and they are all electric factors. The limit of one paper will not permit further tracing of analogies.

It is not significant that you find it necessary in your best text-book to adopt electrical terms? You speak of "Storage of Energy," "Discharge of Energy," "Currents," "Cells," "Conductors," "Resistance," "Induction," "Dynamic Polarity," etc. I hope you will soon find it right to adopt "Electricity" for "Nerve Force," which is a name that has sprung as a sort of *filius nullus* from "Vital Force," inheriting a little of its supernatural attributes. Seriously, I mean that many seem to regard nerve force as something beyond a natural form of force.

It is in considering the nervous system as a whole that the analogy to electric systems of communication appears most striking. When, fresh from the study of a great work, like Barker's, I picture the nervous system and its mechanisms in living action before my mind, I see beside it the central telegraph system of New York or London, with its radii of lines and cables, telephonic and telegraphic; its multiple switches, batteries, relays, transformers, condensers, resistances, shunts, duplex and automatic circuits; all this mechanism, like the nervous system, transmitting force and translating intelligence from point to point by terminal instruments which move, talk, write, print, light, inhibit, accelerate and regulate, and in a hundred ways doing what is done in the nervous system, and always by means of the same force, the only form of force capable of such vast and varied service.

Importance of this Concept. If the proposition can be accepted that nerve force is electrical it will, I think, advance knowledge. From that point investigators will take a new departure to explore with new light the functions of the nervous system and other scientific fields. Dr. F. Savary Pearce, who approved these views expressed in my papers of 1900, has found the electric and neuronic concept useful in interpreting the manifestations of some diseases of the brain and nervous system.

Professors Loeb and Mathews, advancing from the chemical side, arrived at the point where they found that muscle and nerve force is electric, and at that point we met ; I having reached it before them from the electric side by other, but, I think, as certain paths. I have not presumed to invade the technical field of biologic chemistry, in which Professor Loeb has done such admirable work, further than indicated in this paper. I will leave it to Professor Mathews and others to elucidate his views as to the particular form of electricity he finds nerve force to be. If his ingenious view that it is electrolytic can be accepted it will make it still easier to account for the time element in nerve conduction.

Summary. The construction of nerves has been closely, though unconsciously, imitated in electric cables.

Experiments on nerves should be interpreted according to the electrical peculiarities of cables, and not as if they were bare conductors.

Nerves are insulated, distributed and arranged like fine electric conductors.

Their purpose and use are the same as the purpose and use of electric conductors, namely, communication from point to point.

They convey some form of force, and there is not such a gulf between its velocity and that of electricity as has been supposed. This force must be electricity because :

1. Electricity is always present when nerves act.

2. Electricity is the form of force that would do the work required. It is the form of force that would work with such construction.

3. Because the terminal and central mechanisms connected with the nerves correspond to the terminal and central mechanisms connected with electric systems of communication and do similiar work in sending, receiving, relaying, switching, transforming, accumulating, retarding, distributing and translating impressions.

4. Finally, because electricity, with such construction of conductors and of terminal mechanisms is the only form of force that we know of that would do all the work required.

I therefore maintain that nerve force is electricity, and that it would advance knowledge of the nervous system and its functions to accept this proposition.

These views were regularly presented to medical societies in 1900 and published in the Pennsylvania Medical Journal in November, 1900. If they are considered worthy I should value some acknowledgment of their method and priority. The conclusion that nerve force is electricity may have been guessed at before, and some analogy must have been noted by all observers, but I think my papers covered more ground and brought more evidence together than could have been done before, and first clearly stated the logical necessity of the electric concept.

GUNSHOT WOUNDS OF THE THORAX AND ABDOMEN.*

BY W. L. RODMAN, M. D.

Introduction. In a fifteen-minute paper it will be only possible for me to deal with a few of the most important principles involving the diagnosis, prognosis, and treatment of gunshot wounds of the thorax and abdomen. They must, moreover, be treated in a general way, as extended consideration of the injuries possible to each organ or viscus is clearly out of the question. I shall largely avoid statistics, as they are unsatisfactory unless the size and character of the missile, its range and velocity, the probable condition of the viscus at the time of the injury, and the length of time supervening before the surgeon sees the case, are given. I shall also avoid all theories as to ballistics and the resistance of the different tissues as demonstrated by experimentation, leaving such matters to my good friend and distinguished confrère, Major LaGarde. I shall take the cases as we see them on the streets, in their home, or in hospitals.

Gunshot Wounds of the Thorax: Character. Shot wounds of the thorax are penetrating or non-penetrating, the former when the cavity is opened, the latter when there is only a superficial wound of the soft parts. The latter class may at once be dismissed as being of little more importance than other flesh wounds, the only difference being that shock is necessarily greater, and in a few cases very much more pronounced. I have known the wind knocked out of a man primarily and marked

*Reported in the Journal of the American Medical Association.

shock caused secondarily by a superficial pistol-shot wound. Slight hemoptysis may also occur from concussion, and is not pathognomonic, as has been taught, of penetration.

Penetrating wounds may involve pleuræ, lungs, and bronchi, or any tissue in the anterior, middle, or posterior mediastinum, as pericardium, heart and great vessels, thoracic duct, esophagus, or indeed anything contained in the thoracic cavity. I have never known a bullet to injure the esophagus or other tissues placed in the posterior mediastinum, and it is remarkable how few such cases are recorded even by military surgeons, when we consider the great number of chest injuries received in battle. The number thus wounded in street fights also is large, for in an altercation where pistols are used as weapons at close range, the chest is usually aimed at. I should say, in a reasonably large experience with gunshot injuries, there have been ten times as many of the thorax as the abdomen.

Diagnosis. The diagnosis of penetration is, as a rule, not difficult, and should always be made without the use of a probe, as it is as harmful in thoracic as in abdominal wounds. The lungs, for manifest reasons, will suffer far more frequently than all other thoracic viscera, and the diagnosis of penetrating chest injuries is largely the diagnosis of wounds of the lung.

Injuries of the heart and great vessels are so quickly fatal that less interest attaches to their diagnosis. They are not invariably fatal, however, as many supposed before the days of the X-rays. Bullets have been located in the substance of the heart some time after complete recovery. If the cavities of the heart are opened death nearly always ensues. The diagnosis of penetrating wounds of the lung is to be made by shock, hemoptysis, external hemorrhage, which is rarely great, and when present is practically always due to a wound of an intercostal vessel by a ball of large caliber; by emphysema, local or general, or both. In balls of small caliber, as a 32, or those of lesser size, it is surprising how few symptoms may be present. I have known a young wife, suffering from post-marital insanity, to fire two pistol balls, 32 caliber, through her lung in the region of the heart and present no symptoms beyond a slight hemoptysis when I saw her, three hours afterward. Her recovery was uneventful.

The amount of external hemorrhage in such cases is nearly always less than one would suppose from the vascularity of the pulmonary tissues. But other elements to reckon with are elasticity and slight resist-

ance. Hemothorax, which sooner or later may be the most pronounced sign of a penetrating wound of the lung, is nearly always due to injury of an intercostal vessel, and is therefore from a parietal and not a visceral source. This is important to remember in the treatment of such injuries.

Prognosis. I wish to say most emphatically that my own experience leads me to reject absolutely the teaching of most of our standard text-books on surgery, and to accept that of modern military surgeons, which is exactly the opposite, and correct. Shot wounds of the chest, as we see them in civil life, either die at once from shock and hemorrhage or, very generally, get well. Later dangers, as hemothorax, pyothorax, pleurisy, pneumonia, and abscess are exceptional, and usually due to meddlesome surgery. Probing, either with an instrument or unsterile finger, has been the cause of death in thousands of such cases. Infection may be carried in with a bullet which has adherent to it a piece of skin or clothing, but such cases are, I repeat, exceptional. Thoracic wounds occurring in young or middle-aged subjects in good health, if kept from infection, very generally recover. I have treated dozens of such cases shot with pistol balls of caliber from 22 to 44, a few with rifle balls of large caliber, and two from slugs and large shot fired from a shotgun, and have never seen a death that did not occur in a few hours from shock and hemorrhage combined. A few cases, usually large balls in the lung substance, have had stormy convalescences, but a vast majority have had painless and uneventful recoveries.

I now recall the case of Sidney Smith, living near Louisville, Ky., who received two perforating wounds made by a 38-caliber revolver, one through the apex of the right lung, making its exit through the middle of the scapula, the other passing through the left lung just above the heart, lodging beneath the skin over the left scapula. There were no disquieting symptoms, and he actually wanted to leave his bed the following day to renew the difficulty with his assailants, and was only quieted with the information that one of them was *hors de combat* from an abdominal wound and the other had left the country. I made but two visits to the case, as he lived ten miles from Louisville, and there were no reasons for going more frequently.

I recall another case treated in the Louisville City Hospital, where a burglar was caught entering a store early one Sunday morning and received a charge of slugs and shot in his right lung, fired at close range. An opening was made almost large enough to admit my fist, several ribs being severed into fragments. The house surgeon before my arrival,

and I afterward, removed a large number of slugs, shot, and clothing from the lacerated lung substance; the ribs were, of course, resected. To my great surprise this man also recovered, and did not even suffer from a pyothorax. Free drainage saved him.

Treatment. The treatment for shot wounds of the thorax should, as a rule, be a masterly inactivity. The less done the better. The wound should at once be covered with a sterile dressing, that side of the chest immobilized as far as possible, and the patient transported quickly and quietly to his home or a hospital. It is always better to have such cases in a hospital where the X-rays can be used if desirable. Hemorrhage, either external or internal, will rarely be great, and when it is, is nearly always due to injury of an intercostal vessel, and will be controlled by strapping. Any attempt to ligate the vessel in an emergency case is liable to result in infection, and to be followed by pyothorax, pleurisy, pneumonia, or all. I have but once seen free external hemorrhage after a shot wound of the lung.

A negro was caught trespassing on a farm after being warned to keep off, and was shot in the right side with a large rifle ball, which cut the fifth intercostal vessels. When I reached the man he was pulseless, of the peculiar ashy gray color seen in the negro suffering from shock and hemorrhage, the latter particularly, and blood was flowing from the wound in a steady stream, showing that the pleural cavity was partly full of blood, at least up to the level of the wound. The environments were not favorable for ligating the vessel, so I transfixed the wound with a needle, tied a figure-of-eight suture over it, strapped the chest, and sent the case to the Louisville City Hospital. I had no doubt this man would die, but he recovered without a pyothorax. A large amount of liquid blood was aspirated a few days afterward, this being all that was necessary.

A study of all the cases of gunshot wounds of the chest during our recent war with Spain, the Anglo-Boer war, and the Philippine insurrection will demonstrate the comparative benignity of such wounds, many soldiers again reporting for duty in a very short time. Hemothorax was a frequent complication only in soldiers transported a long distance. Pyothorax occurred only where there was emphysema secondarily. Aspiration, under the strictest aseptic precautions, is to be advised when there is dyspnea or other signs of pressure on the lungs. Absolute rest, cooling drinks, a little opium to control cough, with a sterile immobilizing dressing constitute the only treatment necessary in the vast majority

of cases. In severe hemorrhage saline infusion should, of course, be practiced. Any attempt to recover a lodged ball from the substance of the lung would be fraught with danger, and would rarely be justifiable. Nearly always will it remain a harmless tenant in the lung tissue, always unless it has carried in septic material. Now that bullets are so easily and accurately located by the X-rays, it is tempting to go for them at times when it is injudicious to do so. Patients are not only willing, but insist on the removal of the ball. In no other class of lodged balls is it more necessary to remember Abernethy's epigrammatic statement to his class when lecturing on the treatment of lodged missiles. He said: "Sir Ralph Abercrombie received a bullet in his thigh. The surgeons groped, they groped and they groped, and Sir Ralph Abercrombie died."

I am certain that I have seen death follow the removal of bullets that were doing no harm whatsoever, they having become encysted.

Gunshot Wounds of the Abdomen: Character. These are penetrating and perforating—the former when the peritoneal cavity is opened, and the latter when any contained viscus, its mesentery, or the omentum is wounded. This definition, while not free from objection, is generally adopted in text-books, and is therefore accepted.

A bullet may enter the neck, thorax, buttock, or thigh to subsequently penetrate the parietal peritoneum, and to cause single or multiple wounds of the intestines or other abdominal contents. Douglass reports a case that entered the sacrosciatic foramen and caused thirteen perforations of the intestines.

Of penetrating abdominal wounds a vast majority are also perforating in character, at least 97 per cent, according to Douglass. That undoubted cases of penetration without perforation, difficult as it is to understand, do occur, ever with large pistol balls, all must admit, as such cases are reported by Senn, Stimson, Oliver, Hunter McGuire, and others.

I have had one such case. A telegraph operator at East Bernstadt, Ky., was shot with a 38-caliber ball, midway between the ensiform cartilage and the umbilicus, the ball cutting the spinal cord and lodging behind the eleventh dorsal vertebra. There were no symptoms whatsoever to indicate wound of either stomach or intestines, and the man was alive, though paralyzed, a year after the injury. He had been fasting for twenty-four hours, and to this fact, perhaps, is to be attributed his escape from early and actual death, only to lead an existence infinitely worse, a living death.

Wounds above the umbilicus, especially antero-posterior ones, are recognized as being less likely to cause perforation. Those below, and especially oblique ones, are far more likely to be perforating in character; whereas those from flank to flank have heretofore been generally considered as almost certain to cause one or more perforations.

The last statement, almost universally accepted as it has been, must either be modified so as to conform to the experience of military surgeons in recent wars, or to accept their conclusions that multiple perforations, when made by reduced caliber bullets at high velocity, may repair themselves spontaneously. Mr. Makin believes that the small intestines in some way escape, and thinks such good fortune is usually due to the fact that soldiers in battle have not infrequently been fasting for many hours.

Sir Frederick Treves, the late Sir William MacCormack, and many other British surgeons, as the result of their experience in South Africa, and Senn, Nancrede, Parker, and LaGarde, all saw during our war with Spain penetrating wounds that seemed to be perforating ones recover. A careful investigation of the subject will convince any one that both sides to the controversy are partially right, and that safety and conservatism lie in a middle course.

A larger per cent of penetrating wounds than now usually admitted (3 per cent) are non-perforating. Still, admitting this, and doubling or trebling the number, at least 91 per cent are perforating in character. Of this 91 per cent 65 per cent injure the intestines. After all, this is the important fact to remember, for on its appreciation depends the proper treatment of shot wounds of the abdomen.

In general, military surgeons contend that the reduced caliber bullet, nickel-clad as it is, and of high velocity, may produce one or more wounds of the intestines, which in their nature are practically incised ones, and that they may heal spontaneously. They do not claim, however, that such a fortunate result will generally occur, and that it is wise to expect it; but in emphasizing the possible fact do, perhaps, hold out too great a hope of its probability. That it rarely occurs in civil practice with a leaden ball, more or less round and of low velocity, there can be no doubt. I have never seen such a case, and moreover, have never seen a civil surgeon who had.

"Ever" and "never" are words that have no place in surgery, and it is only fair and reasonable to admit the possibility of spontaneous healing in wounds of any hollow viscus. It will occur so rarely in civil prac

tice that it would be the height of folly to expect or assume that it will do so.

Much depends on the size, shape, character, and velocity of the bullet; the viscus wounded, and whether or not it was empty at the time of injury, and of almost as great importance, whether it is a more or less fixed organ as the stomach and large intestines, or freely movable as the small intestines. A reasonable number of wounds of the stomach, large intestines, urinary and gall-bladders have been reported by different surgeons as having recovered spontaneously.

Other cases of supposed perforating wounds of the small intestines have recovered without operation, and the case of Lange in civil practice and many others in military practice seem unquestionable.

Richard Douglass reports a case with thirteen perforations of the small intestines, and although the patient walked without assistance one mile after he was shot, there was no evidence of intestinal contents having escaped at any of the openings twenty-two hours after injury, when a laparotomy was done. Now, if this can happen, we simply must admit the possibility of spontaneous cure in one or more favorable wounds of the small intestines. Many instances of pathologic perforations caused by gastric and intestinal ulcers have recovered spontaneously, yet they constitute so small a per cent of such cases that a physician who rested his treatment and hopes on the slim chances of recovery without operation would be in every way recreant to the trust and responsibility placed on him when even the probable diagnosis of perforation is made.

Would any surgeon in this Section hesitate to operate on a strangulated hernia because a few undoubted cases have recovered without operation?

Diagnosis. The time at my command is too precious to spend any of it in considering the symptomatology of intra-peritoneal injury. There is nothing to add to what has already been said many, many times, and in fact, by every one who has written on the subject.

There will rarely be positive evidence of either penetration or perforation. The only safe way to make a diagnosis is to sterilize the wound, enlarge it under cocaine, and with the sterile finger follow the track of the ball until a diagnosis of penetration or non-penetration is made certain. Probes should never be used, as they are both misleading and dangerous. The diagnosis of penetration having been made, the probability of perforation must be assumed.

Prognosis. The prognosis of penetrating shot wounds of the abdomen can not be looked on as otherwise than most grave. Some, of course, are more dangerous than others. Wounds of the solid viscera, especially the liver, are less fatal than perforating wounds of the hollow viscera. Of the latter, wounds of the small intestines are the most dangerous.

As already intimated, wounds of the large intestines, especially the cecum, ascending colon, and rectum, on account of their more fixed position, are somewhat less fatal. Contrary to what has usually been taught, extra-peritoneal wounds of either intestines or bladder are more fatal than intra-peritoneal ones. Of this Makin is positive, and he cites numerous cases to prove his position.

The prognosis of wounds of the abdomen above the umbilicus is better in general than that of those below. Douglass insists, and rightfully, that the difference is not so great as many have thought, for while perforations of the hollow viscera are less frequent, the danger of hemorrhage is much greater. To this also may be added concomitant injuries to the pancreas, kidneys, liver, and spleen. So, with Douglass, I dissent from the comparatively favorable prognosis usually given of these injuries.

Antero-posterior wounds are on the whole less dangerous than oblique ones, and of all wounds those from flank to flank are the most fatal. Wounds from the back are more fatal than those entering in front, for two reasons: the uncertainty of diagnosis and the greater difficulty of repairing the injury. Emptiness of a hollow viscus at the time of injury greatly influences the prognosis for the better.

Of penetrating wounds of the abdomen Seigel's statistics show that of five hundred and thirty-seven cases not subjected to operation, 55.2 per cent were fatal. Of seven hundred and sixty-three cases subjected to laparotomy, 51.6 per cent were fatal.

Douglass' statistics are both more recent and more encouraging, and do not include cases in Seigel's collection, as they were all operated on within the past five years, and were collected indiscriminately from literature since 1895. Of sixty-five cases operated on forty-four recovered, twenty-one died; mortality, 32.3 per cent.

Douglass' personal statistics are much better, as in his last eight operations there were but two deaths, and both, we may say, were accidental, as one died from leakage at the site of a Murphy button and the other from a mural abscess many days after injury.

H. H. Grant, of Louisville, has operated six times—three times resecting intestine—with five recoveries.

Treatment. Admitting, as we have done, that small wounds of solid viscera frequently get well spontaneously, and that perforations of hollow viscera may, though less frequently, do so, no one with experience in such injuries will advise opium and a "do-nothing" policy; no greater mistake could be made.

But I am not here to advocate operation, as that is unnecessary, but I do wish to insist on as early a laparotomy as is consistent with the environments and condition of each case. Not an unnecessary moment should be lost in preparing for an aseptic operation.

It is not only an easy task to prove that cases operated on do better than those not operated on, but as easy a one to show that the chances for recovery are directly proportional to the earliness with which operative measures are begun.

Seigel's statistics (seven hundred and sixty-three cases) show a mortality of 15.2 per cent in cases operated on during the first four hours; it is 44.4 per cent from five to eight hours after injury; 63.6 per cent nine to twelve hours after injury. It is 70 per cent in those operated on after twelve hours. The reasons for this are manifest. On impact a bullet causes a momentary spasm of the circular fibers, which produces a hernia of the mucous membrane or ectropion. This is immediately followed by intestinal paresis, and both the ectropion and arrested peristalsis have a tendency to prevent extravasation of intestinal contents.

Extravasation will occur sooner or later, and should always be expected. The important question is, When does it occur? It may be moments in one case, hours in another, all depending on the size of the ball, angle of impact, condition of wounded viscus—elements that can not possibly be reckoned with in the vast majority of instances. Knowing that it must occur sooner or later, owing to circumstances, it should be the endeavor of the surgeon to operate before dangerous, if not fatal, soiling of the peritoneum has occurred.

All surgeons of experience in such cases have realized that extravasation in gross amount has not usually occurred before the intestines are handled in the operation.

Protecting each aperture with gauze as soon as it is encountered should be the first desideratum. All openings should be quickly closed by Lembert sutures, and further secured, if necessary, by omental grafts. Unnecessary time should not be lost in paring the edges, unless it seems

that they are devitalized. Fresh hemorrhage is often thus produced and valuable time wasted. In no other class of operations is judicious speed more necessary.

After all openings in the viscera are closed and hemorrhage controlled, the peritoneal cavity should be copiously flushed with warm sterile water. Sepsis and shock are both best combated in this way. Leaving a reasonable amount of sterile water in the cavity has much to commend it. The pretty general practice of using saline infusion during and subsequent to operation has perhaps done more than anything else to improve recent operative results.

It is my belief that drainage should very generally be employed in shot wounds of the abdomen. In wounds high up, in the lesser peritoneal cavity, for instance, posterior drainage should always be employed. It may also be made with advantage in some wounds low down, as shown by the cases of Harte and LeConte. As to the manner of drainage, some prefer gauze drains, others tubes; others still use both. In my judgment it matters little how drainage is made, but it should be made.

Early action of the bowels should be insured by beginning with small doses of calomel sood after the patient comes out of ether. This I think safer than injecting a saline into the bowel at the time of operation.

When the surgeon first sees a case of shot wound of the abdomen he may find it in profound shock, and the question of an immediate or delayed operation will be pressing. It can not be too strongly insisted on that in nearly all such cases shock is due to internal hemorrhage, and to wait for its subsidence or amelioration is very generally a fatal mistake. Shock emphasizes the necessity of an immediate operation. A saline infusion should be given at once by an assistant and a laparotomy proceeded with.

While insisting and believing that the safety of all cases of shot wounds of the abdomen will be best subserved by as early a laparotomy as is compatible with the environments, is is also my belief that late cases—even those seen in general peritonitis—should be given the benefit of operation.

In November, 1897, I operated on a case fifty-one hours after two wounds of the small intestines had been received, the man having been brought two hundred and fifty miles, nine miles of the journey being made in a wagon over a rough country road. The man was in general peritonitis; pulse 130, temperature 103°, respiration 36. I frankly told his brother that it was my belief that he would die on the table, and I operated from a sheer sense of duty. The cavity was full of fecal matter

and the outlook could not have been less promising. There were two intestinal wounds. To the surprise of all of us he made a slow but satisfactory recovery, and is perfectly well to-day. For ten days he was delirious, difficult to keep in bed, and markedly septic. Free sloughing of the external wound occurred, yet it did not result in ventral hernia.

I have also reported a case of perforating typhoid ulcer which was successfully operated on thirty-seven hours after the accident, the child being in marked general peritonitis, with a pulse of 165, temperature 103½°, respiration 40.

These two cases have taught me a valuable lesson, and I am not inclined to withhold operation even in advanced general peritonitis—however caused—if I can feel the radial pulse.

Before closing, I wish to enter a protest against the teaching which has gone out from time to time, that every case of shot wound of the abdomen should be operated on regardless of environments and the ability of the operator. Inexperienced and timid men have, from a false sense of duty, been made to operate on such cases when their lack of training, want of assistants, and inadequate facilities foretold disaster to their patient. I have no patience with the statement that I have heard made more than once in medical societies, that such cases should be operated on in a stable with a penknife rather than pursue a course of masterly inactivity. Such talk—I will not dignify it by the name of teaching—is absurd, and brings surgery into well-merited disrepute. A trained abdominal surgeon should always be had if possible, and it is better to wait a few hours for such an operator than to have an immediate operation by an inexperienced person. Moreover, we have learned something in the past few years from military surgeons, and now know that a penetrating wound is not necessarily a perforating one, and that those of the latter variety may spontaneously recover where the ball is of small caliber and high velocity.

Were I unfortunate enough to receive a shot wound of the abdomen I should insist on an immediate operation if the services of a competent abdominal surgeon and reasonably aseptic environments were at hand, but I am equally certain that I should take my chances on the battlefield or under conditions much the same in civil practice, where either the operator or conditions surrounding presaged disaster. Abstention from all food and drink, with opium to check peristalsis early in the case, will save more cases than reckless operating.

PHILADELPHIA, PA.

ON THREE CASES OF PERFORATING TYPHOID ULCER SUCCESSFULLY OPERATED ON.*

BY FRANCIS J. SHEPHERD, M. D., C. M.

Professor of Anatomy, McGill University; Senior Surgeon to the Montreal General Hospital.

Not very long ago, when a case of perforation of a typhoid ulcer occurred, it was looked upon as hopeless. With the general advance of abdominal surgery attempts were made to close the ulcer by operation. It was thought by many, however, that such attempts were liable to prove futile, because of the usual condition of collapse of the patient in such cases, and the little reparative power which existed, owing to the violence of the disease. It was argued that the operation by itself was a serious one, and with a severe fever supperadded there was but little chance of a successful result. However, operations were still performed, and physicians soon recognized the fact that the earlier the operation took place, after perforation, the better; so the surgeon was called in as soon as the perforation could be definitely diagnosed. Now, from time to time, a successful case was reported, and, thus encouraged, more operations were undertaken, and at the earliest possible moment.

My colleagues at the Montreal General Hospital soon recognized that the surgeon should be called in as soon as possible after perforation, with the result that a fair percentage of recoveries was obtained. In some few cases a mistaken diagnosis was made and no perforation found, but no harm resulted to the patients. These mistakes are inevitable in early operations, but are much counterbalanced by the recovery of not a few patients who have been submitted to the knife. If we wait until unmistakable signs of perforation exist, such as rigidity, distention, vomiting, etc.—in fact, signs of general peritonitis—then we will operate too late.

As to the technique, I have always made use of the lateral incision, and have usually found the perforation near the ileo-cecal valve; by this incision the site of the perforation is more easily found than by the median incision, and with less disturbance to the parts and less moving about of the intestines, and consequently with much less chance of general infection of the peritoneal cavity. The ileo-cecal junction can always be easily found, and from there the bowel followed until the perforation is reached. I have always closed the perforation by turning in the bowel

* Reported in the Edinburgh Medical Journal.

and making use of a continuous Lembert suture, employing fine silk. Other ulcerations in the neighborhood, which can be easily made out by the dark red color and induration, are similarly treated in case they might also perforate, and so render ineffectual the successful closure of the first perforation. After closing the perforation the abdomen is irrigated thoroughly with warm normal saline solution, a rubber drain inserted down into the pelvis, and the wound closed either in layers or by through-and-through silk-worm gut sutures. There is always suppuration in these cases, and the wound shows but little disposition to heal, and usually there is a hernia as a result; but these are small disabilities in comparison with the saving of a life—the hernia can be kept in a place by a suitable truss, or afterward treated by operation if the patient so desires it.

In cases of operation for perforation of typhoid ulcers I have always employed general anesthesia, and have seen no ill results follow. I know that many advocate local anesthesia, but I have never felt satisfied with it, and, from the cases in which I have seen it used, believe that there is more shock than when general anesthesia by means of ether is made use of. The important points, then, in these cases of perforation are—

1. Early operation, in fact as soon as it is positively known that perforation has taken place.

2. Rapid operation, and not too much time devoted to the so-called toilet of the peritoneum.

3. It is also important, at the time of operation, to see that there are no other ulcerations likely to perforate. I have seen the ulcer first treated heal perfectly, and the patient afterward die from a second perforation. It is very simple to turn in the bowel opposite where the ulcers are showing, and where the congestion and coloring of the peritoneal surface indicate probable approaching perforation. I am sure, if early operations were undertaken in every case of perforation, the deaths from this cause would be much reduced.

Case 1. Mrs. T., aged thirty, on October 2, 1900, was sent into hospital, by Dr. Ridley Mackenzie, for operation for perforating typhoid ulcer. She stated on admission that she had not been feeling well for two weeks, but had been doing her housework until the previous day. At two o'clock in the morning of the day of admission she was seized with a very sudden pain in the abdomen, accompanied by vomiting. After a few hours she was seen by Dr. Mackenzie, who made a very careful examination, and diagnosed ambulatory typhoid with perforation

from ulcer. At that time Dr. Mackenzie says that the patient was not in a condition of collapse. He persuaded her to enter the Montreal General Hospital, where she was placed under my care, and immediately prepared for operation. On admission her temperature was 104.6°; pulse 136; respiration, 28. The abdomen was rigid, tender, but not much distended; the tenderness was more marked on the right side. Liver dullness was not obliterated. Blood test gave typhoid reaction; rose spots seen on the abdomen.

Operation. Commenced at 1 p.m. on 2d of October, about eleven hours after the supposed perforation. An oblique incision was made in the right side of the abdomen, as for appendicitis, and all the layers of the abdominal wall incised in the same line. On opening the peritoneum a large amount of yellow sero-pus, mixed with large flakes of lymph, escaped. The cecum appeared in the incision, and looked normal; the ileum was now searched for and easily found; it was much congested, and in places covered with a thin layer of very adherent lymph. About 8 inches from the ileo-cecal valve the perforation was found, opposite the mesenteric attachment. The perforation was a small one with sloughy yellowish edges, and was in the center of a dark red induration of the bowel which represented the ulcer and accompanying infiltration; this infiltration was about a centimeter in diameter. The whole mass was turned in and closed with a continuous Lembert fine silk suture in the long axis of the bowel. At the lower end, to make it more secure, a few interrupted sutures were placed in addition to the continuous one. The peritoneal cavity was then flooded with a large quantity of warm normal saline solution by means of a rubber tube introduced at the bottom of the pelvis; before this was done, the pelvis, which was full of sero-pus, was swabbed out with aseptic gauze pads. After a very complete irrigation had been performed, and the fluid returned quite clear, a large glass drain, reaching down to the pelvic cavity, was placed in the wound, which was then closed, each layer of the abdominal parietes being separately sutured with catgut, except the skin, which was closed with silk-worm gut; gauze and sterile absorbent cotton-wool dressing was then applied, and kept in place with adhesive plasters.

As is usual in these cases the wound did not heal readily, but pus appeared on the third day, and the wound partly reopened. The tube was removed on the second day and replaced by aseptic gauze packing. The bowels moved well the next day by means of a turpentine and soap-suds enema. The fever continued high, 102° to 104° F., for over a

week, and then gradually fell to normal on the fourteenth day after operation. The wound closed by granulation, and the patient was discharged on the 31st of October. I have seen this patient since, and she is quite well, though at site of wound is a slight hernia, which she refuses to have treated surgically.

Dr. Mackenzie tells me that he had seen the patient several times before the perforation took place, and had diagnosed typhoid, but could never induce her to go to bed.

Case 2. Miss H. C., aged twenty-eight, was admitted into the Montreal General Hospital as a private patient, with typhoid fever, under Dr. G. Gordon Campbell, 15th of May, 1901. At the time of admission she had severe headache and also splenic enlargement; temperature, 104.4°; pulse, 92; respiration, 20. Dr. Campbell thought it was about the eighth day of the fever. Two days after admission rose spots appeared, and the blood gave a distinct typhoid reaction. The course of the fever was uneventful until the nineteenth day of the illness, when, at 10 p.m., she had a sudden acute pain in the abdomen, with great tenderness to the right of the median line, and vomiting. Through the night there was some increased resistance of muscles, and the pain kept up, but in the morning was not so severe; there was, however, increased tenderness and intense rigidity of the muscles.

A leucocyte count showed 3,400 white cells. Temperature, 105°; pulse, 88; respiration, 20. It being evident that perforation had taken place, she was transmitted to my care for operation; this was performed at 1 p.m., fifteen hours after the perforation.

The procedure was the same as in Case 1; a lateral incision was made, and the perforation found within 4 inches of the ileo-cecal valve; the perforated portion was turned in, and the longitudinal axis of the bowel closed with a continuous Lembert suture. The abdomen was washed out freely with normal saline solution, the wound closed in layers, and a drainage-tube introduced into the pelvis.

Her condition after the operation was good, the discharge from the wound was free for some time, and there was considerable pus. The wound healed slowly by granulation, but without any serious complication. After the operation the temperature fell to 102°, and the range for the next week was from 103° to 103.8°. During the fourth week of the fever the temperature was between 101.2° and 100°, and the pulse 70 to 80. On the thirty-fifth day she developed a phlebitis of the left femoral vein, which gradually disappeared under treatment. She was

discharged, with the wound healed, on the 21st of June, 1901. I have seen her within a few weeks, and she is in perfect health, but has a fairly large hernia at the site of the operation wound, which is easily controlled by a truss.

It is of interest in this case, that, although perforation had taken place, there was no leucocytosis.

Case 3. Michael M'I., aged thirty, was admitted into the Montreal General Hospital, under Dr. Ridley Mackenzie, suffering from typhoid fever. As far as could be made out, he was in the third week of the disease, which was of a fairly severe type. On the 24th of July, three days after his admission, at 3 p.m., he was seized with a severe pain in the right iliac fossa; temperature, 102°; pulse, 150. When seen an hour after, there was obliteration of liver dullness and marked leucocytosis. Within two hours of the perforation he was seen by me and immediately operated upon.

The usual incision was made, and some thin sero-pus escaped on opening the peritoneum. The perforation was easily found about 1 inch from the ileo-cecal valve, and was quite small. The opening was easily and rapidly closed by inverting the peritoneal surface, and using a continuous Lembert suture. The pelvis was washed out with warm saline solution and the wound closed, a drainage-tube being left at the lower end, which reached the pelvis.

The patient did well for a week and then began to have high temperatures, 103° to 104°; this was apparently due to the fever and not to the wound. The tube was removed in three days, and gauze substituted. The wound did not heal very kindly, but discharged considerable pus and healed mostly by granulation. His temperature was not normal until the 28th of August, and he was not discharged until the middle of September. I have seen him quite recently (July, 1902), and he is in perfect health. He came to consult me about a hernia which existed at the site of the wound, and preferred a truss to operation.

Montreal, P. Q.

ANNUAL MEETING OF THE ALUMNI ASSOCIATION OF THE LOUISVILLE MEDICAL COLLEGE.

The annual reunion of the Alumni Association of the Louisville Medical College, the second since the reorganization, was held in Louisville March 23d and 24th.

When the business session was called to order by the president, Dr. R. C. McChord, of Lebanon, Ky., at the college building, there were present, besides the graduating class, over one hundred of the old graduates. After the transaction of business and the election of the graduating class to membership, the following papers were read:

"Scrotal Hernia of the Bladder," by Dr. J. H. Rhodes, Jackson, Miss., class '82.

"Adenoids of Infancy," by Dr. W. B. McClure, Lexington, Ky., class '83.

"Should the General Practitioner Operate?" by Dr. H. C. Vaught, Richmond, Ky., class '91.

"The Mental Defects of Childhood," by Dr. Perry Woolery, Heltonville, Ind., class '97.

"Treatment of Chronic Bright's Disease," by Dr. W. F. Boggess, Louisville, Ky., class '85.

"Cancer of the Intestines," by Dr. J. Garland Sherrill, Louisville, Ky., class '88.

Much interest was manifested and the papers were actively discussed.

The following papers were read by title:

"Varicocele," by Dr. W. A. Quinn, Henderson, Ky., class '83.

"Endometritis and its Treatment," by Dr. R. E. Larue, Owensboro, Ky., class '94.

Officers for the ensuing year were elected as follows:

President, Dr. W. B. McClure, Lexington, Ky.

First Vice-President, Dr. H. E. McKay, Bardstown, Ky.

Second Vice-President, Dr. W. J. Leach, Sellersburg, Ind.

Third Vice-President, Dr. M. P. Creel, Central City, Ky.

Secretary and Treasurer, Dr. Adolph O. Pfingst, Louisville, Ky.

The most enjoyable feature of the session was the banquet at the Galt House on the night of March 23, 1903. After the serving of the menu, during which the guests were entertained by an Italian string

orchestra, a number of toasts were responded to. Dr. J. W. Fowler acted as toastmaster in his own inimitable way, and called upon representatives of the States of Kentucky, Indiana, Tennessee, Mississippi, North Carolina, Louisiana, Nebraska, Oklahoma, and Texas to respond for their respective States. Dr. C. W. Kelly made the "hit" of the evening with his toast "Dry Bones," which was a continuous flow of good humor and wit intermingled with reminiscences of former college days. On the morning of March 24th surgical clinics were held at the City Hospital by Dr. Sherrill. At 2 o'clock the graduating exercises of the class of 1903 were held at Macauley's Theater. Fifty-three men received the right to practice their chosen profession.

The first honor of the senior class was awarded to Dr. Eb. B. Long, of Indiana, which carries with it the interneship at the City Hospital of Louisville. The junior, sophomore, and freshman honors were respectively taken by John T. Hunn, of Kentucky, D. S. Conner, of Indiana, and Porter Norton, of Oklahoma.

Dr. J. D. Maguire, of Kentucky, received the appointment as resident physician to the St. Joseph Infirmary at Lexington, Ky., and Dr. W. H. Lovejoy, of Mississippi, a similar position in the State Charity Hospital of Vicksburg, Miss.

The salutatory address by Dr. John D. Miller, of Mississippi, and the valedictory address by Dr. J. D. Maguire, of Kentucky, were both characterized by a certain freshness and by their brevity, differing thus from the usual stereotyped long-drawn-out addresses.

Gen. Basil Duke made an address full of wit and interest, in which he beautifully eulogized the life of the lately deceased eminent pathologist, Professor Virchow.

The benediction was offered by the Rev. E. L. Powell.

THE TREATMENT OF PNEUMONIA.*

BY J. E. SMITH, M. D.

There is a more or less widespread opinion that the course of pneumonia is not very greatly influenced by treatment, still none of us are willing to admit that we can do nothing to add to the chances of the patient's recovery. As we all know, pneumonia is a self-limited disease, and the tendency of self-limited diseases is to recovery. Being an infective disease caused by the active presence of the diplococcus lanceolatus in the lung tissue, I can not see the rationale of any treatment aimed at its abortion, save that of serum therapy.

But let us pass this for the present, granting, however, the above; we will consider those measures best suited to aid the patient to withstand the disease. Here I will state that I have not come before you with any hard and fast formulæ or treatment guaranteed to cure any and all cases of pneumonia. I simply wish to state my opinion, and get yours, of the different remedies and aids that have been placed before the medical profession. I also wish to state that I myself have not tried all of the different remedies, my opinion of many of them being based as much, if not more, upon the writings and investigations of others than upon any personal trial.

Let us first take up the different remedies advocated by different parties as specifics. Under this heading are anti-pneumococci serum, creosote, carbolic acid, and the salicylates of sodium and ammonium. There are many more, but these have the most adherents. The anti-pneumococci serum is certainly a rational remedy and the most promising one of them all. Yet a sufficient number of cases have not been subjected to this treatment, and this alone, to warrant any one to draw any definite conclusions. Some really astonishing recoveries have occurred under its use; in other cases it has seemed to be of no benefit whatever. The serum treatment, while promising much, has not as yet come up to anything like expectations.

Creosote has a number of adherents, and some of these are recognized authorities. A. H. Kerr says, "I do not say that creosote is a specific for pneumonia, but I do say, with emphasis, that it is the nearest approach to one that has been reached." The dose as given by its adherents is ten to fifteen minims every three or four hours. I have

*Read before the Brashear Medical Society, January 20, 1903, at Chaplin, Kentucky.

tried the creosote treatment, and can truthfully say the only effect that I have noticed is a badly upset stomach, necessitating its immediate withdrawal.

The salicylates of sodium and ammonium are advocated by Liegel, Sebring, Ferguson, and others. Liegel reports seventy-two consecutive cases in miners, all recoveries, a large proportion being alcoholics. He claims that the disease was only one half the usual duration, with no crisis, the temperature gradually declining from the first day. Ferguson is reported as having treated one hundred and six cases, with only six deaths. Truly, these are astonishing statistics when compared to the usual mortality, 20 to 35 per cent in this disease.

It is, however, only fair to state that after repeated trials with the salicylates a number of the hospital reports do not uphold these statistics. With these few remarks I will pass from the so-called specifics.

Believing, as I do, that pneumonia is an acute general disease with a local manifestation in the lungs; that we have no specific remedy; that we can not abort it; that its dangers are caused on the one hand by the specific poison of the pneumococcus, and on the other by the inflammatory changes in the lung tissues, I feel that our aim must be not to treat the disease, but the patient; to aid him to the best of our ability to withstand the onslaught of the disease, to preserve his energy, to keep him alive as long as possible, for every hour gained is a danger past. With this end in view each case becomes a law unto itself. Given a sthenic case with full bounding pulse, cyanosis and dyspnea, bleeding often proves of magical good; only that amount of blood is to be taken that gives relief. Twice I have seen it of inestimable value. Later on in the disease, after consolidation has taken place, it is recommended as a means to unload a dilated right heart as shown by sharp accentuation of pulmonic second sound, distended jugulars, and small pulse. As vascular sedatives in the first stage, veratrum viride and aconite are highly praised by some. They must, however, be used with caution, and only when their effects can be watched by some capable and intelligent person. Blistering and poulticing in the first stage to limit the extension of the disease, or to alter its course, have never in my hands proved of any benefit.

Blistering, it is true, relieves the pleuritic pain, but then we can do that with more comfort to our patients and ourselves in other ways; hot or cold packs—hot with the debilitated—are very serviceable. Cupping

is another valuable means of relieving the pain and engorgement. The coal-tar preparations are also of value, and in sthenic cases, in the beginning of the disease, when the temperature is high, skin dry, phenacetin in three to five grain doses often acts like magic and can be given without harm to the patient. They should not, however, be frequently repeated nor given at all after any symptoms of heart failure. Again, opiates are serviceable, but I am opposed to their indiscriminate use for this symptom. They relieve, it is true; they, however, disorder digestion, lock up the secretions, and increase the carbonic-acid poisoning by benumbing the respiratory centers. Cough is another distressing symptom, especially when the pneumonia is complicated with an attack of pleurisy. Here ammonium bromide in ten-grain doses alone, or in combination with hyoscyamus, often acts nicely. However, in a large number of cases we will have to have recourse to opiates. In such cases it is by far the best to select that preparation least likely to disorder digestion. Codein is my favorite; heroin being my second choice, alone or in combination with atropine.

Insomnia is another distressing symptom, and must always be relieved if we are to expect the best results. Loss of sleep, as we all know, is very exhausting even to the most healthy constitution. The bromides again are my favorites, and it is well to remember that a combination of them often acts nicely when one alone fails. Trional, chloral, and sulphonal are recommended, also chloralamid, and as this is reputed to be a circulatory stimulant, it should be given the precedence. Full doses of whisky often act nicely where everything else fails.

As regards the expectorant mixtures, I rarely use them. In some few cases in the beginning of the disease, when there is a concurrent bronchitis, they are of service. When they are needed, ammonii chloride and the compound licorice mixture will be found to answer. Later on in the disease, during resolution, I can not see that they are of any service, as the croupous deposit is removed by absorption, not by expectoration.

The temperature at times requires reduction, and when this is the case I prefer sponging with cold water every three or four hours if necessary. Cold baths and cold packs are very seldom required, but if they are I never hesitate to give them, and I have seen no bad effects from them when used in proper cases. Guaiacol, twenty to thirty minims externally, is used quite extensively. Personally I have never used it. The various coal-tar derivatives have also been used for this

purpose. If other symptoms are mild, I see no objection to their use. However, they must be repeated but once, and never at all if the pulse is as fast as one hundred and ten. The alkaline diuretics and diaphoretics, such as the acetate of potash and liquid ammonium acetate, aid in keeping down the temperature.

In the great majority of cases the support of the heart is of the greatest importance, and for this indication every heart tonic known has been tried, and a safe rule to follow is that "no one is at all times the best." Strychnine and whisky are the ones most used. If the case is a feeble person, with relaxed muscles, alcohol in the form of whisky or brandy every two or three hours will, I think, prove to be the best. The dose is to be judged by its effects on the patient; what will do in one case is quite often in others of no use whatever.

In a patient under three years of age great care must be used in giving whisky. Personally I would not give it unless absolutely necessary. The past winter I saw two cases of pneumonia in children of one and four years of age respectively. Whisky had been given from the date of diagnosis in both cases. In one, eight hours after the whisky was begun, the child developed symptoms of what was thought to be beginning meningitis. The other developed the same symptoms twenty hours after whisky was begun. The symptoms were increased restlessness, rolling and tossing of the head, staring eyes, and finally retraction of the head. In each, in three hours after the whisky was discontinued, these symptoms disappeared.

For a laboring heart, with feeble-filling or empty arteries, nothing acts as nicely as digitalis. The doses of digitalis may be given as far apart as six or eight hours. Of course, if the fever is high digitalis should not be used. If the patient be one advanced in years, with thickened arteries and a high arterial tension, nitro-glycerine is the most rational remedy, and the one that will prove of the most benefit. If the patient is an alcoholic I begin the whisky early, and continue it throughout the disease quite freely. Strychnine is another of the heart tonics that is relied upon by many. It is not only a heart but a respiratory tonic; also a general tonic of great value. In all severe cases, with quick and hollow respirations, it will prove to be the best. In the worst cases give it hypodermically and in good-sized doses.

Concerning the use of oxygen, diffusible stimulants are often needed. Their fleeting effects must, however, be remembered. They are especially indicated when the pulse is quick, small, or irregular. The

aromatic spirits and the carbonate of ammonia are the best. The spirits can be given every hour, the carbonate every two or three hours. As to the use of oxygen I have little to say. By those competent to judge, it is said to be of great value, and those that have used it, with but few exceptions, speak well of it. Theoretically I can not see that it can do any harm, and must be of comfort to the patient. Personally I have never used it.

Another good rule in the treatment of pneumonia is "stimulate freely at the crisis." Begin some hours before it is expected.

With a few remarks on the general management of a case of pneumonia I will close this paper.

As regards the diet, a liquid or temperately solid one will be found best suited. The diet should be given regularly and in sufficient quantity. That quantity only is to be given that is digested. Undigested food does the patient no good, and in a great majority of cases does harm. The quantity digested, not the quantity taken, is what is of value to the patient—half a pint of milk or its equivalent, every three or four hours, to an adult. The administration of food every half hour or hour keeps the stomach in a constant ferment. With no time for rest the appetite is soon lost; nausea and vomiting occur. Beef juice, beef tea, mutton and chicken broth, or oyster soup, may be substituted for the milk for a time. Eggs and such food can be allowed in a number of cases.

As regards the surroundings, the patient should, if possible, have a large, airy room with free ventilation, but protected from drafts. I make it a practice to protect the chest in every case. For this purpose the oil-silk and cotton jacket gives the best service. The chest is kept warm and moist, and if made properly the jacket can be easily removed for bathing and cleansing. Flannels or pads of wool and cotton can be used if no jacket is handy. The bowels should be kept open; one action a day.

One word as regards prophylaxis: As is well known now, the cause of pneumonia is a micro-organism; this organism is in the sputa of those afflicted with the disease, and the disease is received by inhaling the sputa. I believe the same precautions should be taken to collect and destroy the sputa as is done in tuberculosis. This should be done not only during the brief sickness, but during the convalescence of the patient.

Reports of Societies.

LOUISVILLE CLINICAL SOCIETY.*

Regular Meeting, Tuesday, March 31, 1903. Dr. John R. Wathen in the Chair.

Appendicitis Complicating Ovarian Trouble. Dr. Hugh N. Leavell: This is a specimen of an appendix which became involved through ovarian enlargement. The largest ovary, and the one most inflamed, was on the right side, and the tip of the appendix was adherent to the ovary. The appendix has some fecal concretions in it, and is somewhat enlarged. It was constricted at the attachment to the gut. I show it merely to call attention to the fact that we should examine the appendix whenever the right ovary is involved.

Dr. T. P. Satterwhite: It is a recognized fact that whenever we perform a laparotomy and discover any manifestation of trouble about the appendix it should be removed, but not otherwise. Some operators consider that we might as well remove it while the abdomen is open.

Health Officer's Report. Dr. M. K. Allen: I will report the statistics from the health department for the month. Up to date we have had eleven cases of scarlet fever, with no death; thirty-five cases of diphtheria, with three deaths; thirty-four cases of typhoid fever and fourteen deaths. One hundred and twenty-seven cases of smallpox have been reported with no deaths until to-day, when one is reported.

I would like to mention a matter of some interest. The health department took out warrants some time ago against three proprietors of dairies whose cows were being fed on distillery slop. The grand jury indicted these men, but they employed attorneys and had the case postponed a time or two. It comes up on the 7th of April, and I think it will come to trial then. The language of the statute is very clear, and prohibits the sale of such milk, and I have felt it my duty to enforce the law. I hope the cases will be tried on a legal basis entirely, but as a precaution the health department has undertaken to get up all the data concerning the matter. We have written to experts all over the country, and the chemist has made numerous tests.

It occurred to me that it would be a good thing to determine whether or not tuberculosis prevailed more among cattle fed on

*Stenographically reported for this journal by Edgar Allen Forbes.

distillery slop, or otherwise. I had to appeal to the State Board of Health and use very convincing arguments to get permission to use the State Veterinarian in applying the tuberculin test. I succeeded in getting that done, and took a herd at Twentieth and High streets, consisting of sixty-three animals. We commenced yesterday morning and took their temperatures every three hours. Last night at nine o'clock we commenced inoculating them with tuberculin, and have been taking temperatures every two hours. I will report results later.

Dr. S. G. Dabney: It occurs to me that Rohe, in his last edition some years back, made the statement that the milk from distillery-fed animals was not injurious. I am inclined to think, however, that if he were living to-day, he would reverse his opinion.

Dr. P. F. Barbour: This subject appeals to me very strongly, and I have given much attention to it on account of my work among the children. I believe those who have devoted attention to the feeding of children have condemned the use of milk from swill-fed cows. Any compound as complicated as milk must be exceedingly difficult of chemical analysis. One of the ideas advanced is that a cow fed on swill gives more milk and that it is of poorer quality. Another fact that seems to be established is that it turns acid more quickly. But matters of that kind are difficult to prove, and it would take many examinations and experiments on children fed with this milk. It will be interesting to see if Dr. Allen's demonstrations show that this is really true.

Dr. T. P. Satterwhite: I think we owe a debt of gratitude to our health officer for investigating those important matters, especially in regard to the tubercular cows. The imagination has something to do with the pleasure of such an important article of diet, even if it should prove not to affect the quality of the milk. I am glad to see that he is going to follow the letter of the law; if the law is of no use, let it be repealed.

Dr. J. A. Flexner: A bacteriological examination of milk drawn from these swill-fed cows shows a very large number of bacteria. I have seen it drawn and compared with milk from cows fed in the meadow, and the comparison was astonishing. This is the reason that the milk becomes more acid.

Dr. J. B. Bullitt: I was delighted to hear Dr. Allen's remarks. It is a very important subject, and what Dr. Barbour and Dr. Flexner

have said agrees with the reports of many men in late years that such milk is not a healthy food product.

Dr. G. B. Young: I think we are to be congratulated that the health officer is enforcing the law. The crying need of the United States is in that direction. In regard to Rohe, I have a different opinion. He was a good teacher in his day, but the last edition of his work came out in 1894, and as the subject is one involved with researches in bacteriology and the chemistry of food-products of recent years, I do not think an authority nine years old can be quoted now. I am strongly of the opinion that swill-fed milk is injurious, and I think the authorities speak very strongly in regard to its character. It is thinner, has a larger number of bacteria, and even if there be no pathological result, this puts us on the defensive. I think the law should be enforced, and especially if it can be proven that this milk is injurious.

Dr. S. G. Dabney: In my remarks I tried to say emphatically that if Rohe were living to-day, he would probably change his mind on the subject. I just brought it up as quoting an authority of a number of years ago. That was the point I tried to make.

Dr. M. K. Allen: I reported it merely as a matter of interest. It occurs to me that there can be no question but that the milk from swill-fed cows does not contain the amount of butter fat and solids that come from the milk of other animals. If any of you are acquainted with the manner in which these dairymen obtain this swill, you will agree with me that after being kept for two or three days it is not proper food. They keep it until it is sour. The dairy where we have been applying these tests has sixty-three animals, with no pasturage. They are confined in small stalls, with a long trough in which the entire sixty-three are fed. If the cow at the head of the list has tuberculosis, the secretions from the mouth and nostrils go into the trough and are passed along to the other animals. If any of you are familiar with slop-fed animals, you know that they have a continuous diarrhea. I do not think milk from such animals can be wholesome.

Reports of Cases. Dr. S. G. Dabney: I may report a case that is still *sub judice*. A gentleman of forty-six consulted me ten days ago for a running in his ear and slight deafness. Upon examination the drum membrane showed few changes, and there were no other symp-

toms of acute inflammation. The naso-pharynx was examined, and I found a growth in it as large as the last joint of my thumb. It was smooth in outline, glistening in appearance, and soft in consistency. I was inclined to think there was fluid in it, but did not get any. The growth pressed down on the Eustachian tube, particularly on the left side. I thought it might be a rare case of adenoid, though it did not look much like it. I tried to remove it with a pair of forceps, but they would not "bite." Yesterday, with an adenotome which cuts beautifully, I cut it off, but most unfortunately it dropped into the basin and was lost.

The question with me is whether or not it was a sarcoma. It bled some, but not very much. I feel a little anxious about the man, and was surprised to see in the literature that sarcomas in that region present very much this appearance. It is hard to outline. The tissues may be a little infiltrated. It does not come from the nasal cavity, and it cut about like a piece of muscle. I hope there is enough of it left to get another slice.

Dr. William Cheatham: I never saw a sarcoma in that locality. It may be a case of degeneration. The growths take the character of the tissues from which they spring. In the pharynx they are usually true fibromas, but this may be a sarcoma. It is too soft to be a fibroma, and the man is too old.

Dr. John R. Wathen: I saw several similar cases in connection with Dr. Coomes several years ago. One of them was the boy you have all seen at St. Joseph's Infirmary. He came from the country, and Dr. Coomes operated on him. He had a tumor as large as your fist, springing from this same region, with a long pedicle. This was removed in sections with the snare. He had another, which came from very far back and protruded from the nose. There has been no return of the tumor. Fibromas are quite common in this region, and they bleed very profusely. One case I thought would bleed to death. I removed the superior maxillary bone in that case. I was surprised to find that sarcomas are very rare in this region. Sarcomas are less liable to bleed than fibromas, because the latter have more fully developed blood-vessels, but in sarcomas we have only embryonic blood-vessels.

Dr. S. G. Dabney: The case reported by Dr. Wathen is of a very different type. Fibromas of youth are very different. They are never known beyond the age of thirty years and are nearly always between ten and twenty-five. I think the doctor is a little wrong about the

relative amount of bleeding. Fibroids in the naso-pharynx generally bleed very profusely. The age would exclude anything of that kind. The soft growth he speaks of sounds more like fibro-myxoma. Generally fibroma of the naso-pharynx is very hard. This growth is not related to those, and the fact that it did not bleed much is very poor evidence against it being a sarcoma. I have not looked up the literature on the subject very fully. The kind Dr. Wathen spoke of is that with which we are all familiar.

Dr. John R. Wathen: Dr. Senn has written a special paper on that class of tumors.

The essay of the evening, "Amœbic Dysentery," was read by G. B. Young, M. D. [See page 241.]

Discussion. Dr. H. N. Leavell: I suppose a good many of us have seen these attacks of dysentery in men from the Philippines and Puerto Rico. I have seen several of them which have resisted the ordinary forms of treatment for dysentery. One I have on hand now gives a history of dysenteric actions for three and a half years intermittently. He has ten to twenty stools a day for a month or two, then five or six for a long period, and then recurrence. It has resisted the action of bismuth, tannigen, astringents, antiseptics, etc. These have given only temporary relief. I have found that local treatment gives better results. I use normal salt solution with a one-per-cent solution of creolin, using the salt solution one day and the creolin the next for about a week. I also use five-drop doses of nux vomica before meals. I still have one or two cases that have resisted even that treatment. Some of these cases give a history of having had malaria, but it is not the ordinary malarial dysentery. It is amœbic in form, and for that reason I have been treating it with salt solution and creolin.

Dr. J. W. Irwin: I was greatly interested in the paper, because of the local origin of some of the cases. It appears that we are about to have another form of disease in addition to our present forms, and this is one of the results of our acquisition of the Philippines. Since the Philippine trouble arose four of these cases have come under my observation. Three were mild cases, but amœbæ were discovered. Three of them had been treated in San Francisco and came to me with relapses. I found a slight thickening of the colon in all, and in none of the three were the stools more than five a day, and usually occurred in paroxysms. In every instance I found great flatulence. I found

also that the discharges were putty-like, with no action of the liver. I found the liver enlarged and tender; the spleen also was nearly double in size. I treated them promptly according to an Eastern authority on this subject. I first washed out the intestinal tract with tepid water and saline solution, and then at night gave half a drachm of quinine by colon douche, allowing it to be retained, and gave ten to fifteen drops of deodorized tincture of opium. They usually slept through the night and complained in the morning. While the stomach was empty I gave twenty grains of ipecac in powder, which they had some difficulty in retaining, but I kept them in a recumbent position. After a few days of this, given every second day, they showed a wonderful change. The quantity of the secretions was lessened, the discharges from the bowel ceased, and I found that the decayed odor of the fecal matter had entirely disappeared, and with it the flatulence. After treating the first three cases for four or five weeks they were dismissed, and I have not heard from them since. Their appetites had become ravenous and the thickening of the colon was lessened.

The other case was brought to me from Lawrenceburg, Ky., after having been treated for some time. He gave a history of having had dysentery in the Philippines. He had been treated for a year and a half in the hospital at San Francisco. Investigation showed large quantities of amœbæ in the discharges, with very little blood. I sent this patient to the infirmary of the Kentucky School of Medicine, and kept him there for three or four months under treatment. The descending colon was thickened and the abdomen enormously distended; he was very anemic and the food passed through without change. The stools showed no evidence of blood. After this treatment had gotten under headway there was great improvement. He had been in the habit of having four of these stools a day, and now he had only two and sometimes but one. The offensive discharge disappeared and appetite became ravenous, and he gained in strength and flesh. A considerable part of the thickening of the colon disappeared, and he was discharged after about three months. Since that time he has retained his health fairly well, and now has one or two stools a day. Other conditions incidental to the trouble have never occurred, and it has now been nearly a year.

As a general thing these patients never recover. In none of the four cases reported was there any tendency to abscess of the liver and

no symptom there except a little tenderness. None of them were contracted in this country.

Dr. J. A. Flexner: This paper has been of great interest to me. I have never seen amœbic dysentery in private practice, but I saw some cases in Baltimore. I had a conversation with Dr. Barton, of the Commission, and they look upon the amœba as a secondary invader and think the real cause is Shiga's bacillus. The use of quinine in the treatment is not based upon the idea that the trouble is due to malaria. Quinine rapidly destroys the motility of the amœbæ.

Dr. T. D. Berry: I have seen several of these cases. I first saw it at Galveston, and since that time there have been eight or ten cases there on an average. Four of the cases impressed me particularly. The first was that of an Italian woman, who had what appeared to be an attack of cholera morbus after eating a heavy supper. She had about twenty actions a day, her stools being very thin and watery. They were found swarming with amœbæ. She was in the hospital about a month and was discharged apparently well, and that was about the only case that did get entirely well. She was brought back three years later with pneumonia, and told me she had had no recurrence of the dysentery.

Another case was that of a Union soldier who contracted the disease during the war. He came to the City Hospital at Galveston about a month before his death. Amœbæ were found in his stools, and that was the cause of his death. The autopsy showed that the large intestine was immensely thickened and inflamed both on the outside and inside. It was full of ulcers and strictures. That was a case of very long standing, so we can not put all of them down to the account of the Philippine war.

The third case was turned over to me as a case of dysentery, and examination of the stools showed the amœbæ. Quinine injections were given. An abscess developed in the lung and broke, and about a pint of nasty, slimy stuff, looking like canned tomatoes, was poured out. He died a week after the rupture. The true origin of this abscess was unquestionably in the liver. The intestines were found studded with abscesses, except about the descending colon, where they seemed to have healed up as a result of the quinine injections.

The next case was that of a negro, about thirty-five, and amœbæ were found. He stayed in the hospital about a week, and his case resisted all treatment. I dosed him with opium, morphine, etc., and he would lie in bed in a stupor most of the time when he was not running

for the closet. He was kept in the first stage of opium poisoning. I gave him tannic acid and all the other astringents, but without effect. A week later he said the medicine was doing him no good, and he left.

When I came to Louisville I had no idea but that amœbic dysentery was prevalent here. I began to examine the stools and found it in three or four cases. I think it is fairly common. I saw a man to-day who has had it about a year. He promised to send me a specimen of his stools, and I expect it to turn out a case of amœbic dysentery. If so, it will be another case of local origin.

Dr. Carl Weidner: I have enjoyed the paper and been benefited by it. I have learned something from the experience of the gentlemen who have discussed it, and it will stimulate me to be a closer observer. I have not made an examination of the stools for a year. I have had lately two cases of dysentery, but I let the stools stand too long.

One of these cases behaves very much like those reported. It is in a young man, a resident of this city, and it differs from cases I have seen in former years. It seemed to me peculiar to have this case at this time of the year. I was called up by a doctor in Portland some time ago with regard to treatment for dysentery. The treatment I used was that suggested by Dr. Barbour at the last meeting, bichloride of mercury. I have a method of giving an emulsion of oil, and it gives such excellent results that I use it as routine. Then I use bichloride, a fiftieth of a grain four times a day. The man was well in about three weeks' time.

Dr. Frank had a case last fall that I was asked to see and give an opinion on. The man came from near Lexington, and I diagnosed it as abscess of the liver from the history and physical examination. It was decided to operate, and a large abscess was found in the right lobe. The man seemed to improve for a while and was sent home. Three or four weeks later he returned, and soon died. The liver was exhibited at the County Society—one big abscess and a number of smaller ones. I made an examination at that time of some of the fluid aspirated from that abscess and found no amœbæ. The fluid was a reddish-looking liquid somewhat like that described by Dr. Berry. I did not use any method of staining. I saw no motile bodies, and tried to aid the examination by warming the slide.

In a case of amœbic abscess of the liver reported in the American Medical Journal, it was stated that the amœbæ were not found in the pus. Still he makes the diagnosis of amœbic abscess, and says that

they are frequently found when one scrapes the wall of the abscess cavity, though they may be absent from the contents. In this case of Dr Frank's I made a culture examination and got no growths at all. There were no pus organisms.

You will all recall a case I reported a year ago, which interests me now more than ever. I examined the urine of a doctor's father, who had lived in Texas. I found amœbæ in the urine after it had been five or six days on the way and chloral hydrate had been added to it; the amœbæ were still motile. The urine had been examined in Texas and amœbæ found.

Dr. William Cheatham: Some man reports a case where he washed out the colon in an extreme case and made a perfect cure. I think that was in Japan.

Dr. G. B. Young: So far as the malarial element is concerned, as Dr. Flexner said, the quinine is not used on account of that. Down in the lower Mississippi Valley I have seen men with a temperature about normal, and no history of malarial paroxysms, but with a history of diarrhea with more or less blood and some evidence of intestinal inflammation but without any mucus, such as ordinarily comes from inflammation of the upper part of the small intestine. I have seen these cases, which did not seem to yield to bismuth and other forms of treatment, and upon examination I would find parasites in abundance, and then give quinine just as in malaria and cure the dysentery right away. In these cases it is used on account of its effect on the amœbæ.

The paroxysms of stools come in the early morning. So far as my reading goes, I think the use of ipecac applies more especially to the very severe cases of dysentery, where they have to go to stool every half hour and have great prostration. The more recent research seems to indicate that these cases are not due to the amœbæ but to Shiga's bacillus.

In regard to finding amœbæ in the blood, I do not recall a report of any one having found them. I do not see how they could live there. There have been a great many cases in San Francisco. I have an impression that it is pretty well established that the amœba by itself produces a certain type of dysentery. A man in Philadelphia made repeated attempts to cultivate these amœbæ, and from this culture to experiment with animals, the cat especially, but he was not able to produce the disease in the cat. He argued that this was the only

thing that could produce it, since none of the other influences could cause the disease. I intended going into this more fully, but the grippe laid hold of me. I have an impression that I have seen recent reports to the effect that the condition associated with fulminating attacks of fatal dysentery is due to Shiga's bacillus. But this dysentery, which is by no means so acute and without so much emaciation and which yields to treatment and is followed by recurrences, is due to the presence of amœbæ.

I expect that it is probably true that ileo-colitis is frequently called dysentery, the blood being due to violent peristalsis or inflammation.

Dr. Weidner spoke about staining. Dr. Berry is our amœba man, and his experience is that it is about the easiest thing in the world to find, unless you want to show it to some one. Dr. Hayes was down here one Sunday afternoon, and though there had been one or two on the stage we could not find them again. I have read of staining, but so far as I know no one puts any stress on staining. In one of these cases there was a flagellant body present. I think some European cases revealed it. I found it once accompanying a tape-worm delivered here.

My intention was simply to report these cases. I think we do not report our cases sufficiently, and I report these to make them a matter of record and to establish the fact that amœbic dysentery is of local origin.

Dr. W. H. Wathen: I would like to ask Dr. Young to tell us the difference between the amœbæ of this dysentery and the ordinary amœbæ of biology, such as are found in stagnant pools.

Dr. G. B. Young: This amœba is a rather striking looking body of from fifteen to thirty-five microdiameters. Those seen here are larger than this. When alive it is of a greenish tinge. It is distinctly granular and has several vacuoles. The way in which it moves seems to be different. It has a way of shooting out its endosoph and the rest of the body follows. I am not biologist enough to speak fully. When it is dead it is very hard to tell anything about it. We tried to make Dr. Hayes see one, which we could see because we are in the habit of seeing them, but failed. It looks like a great big round cell. You have to see it die to recognize it when dead.

We seldom get these cases here until they have been sick for some time. The patient generally goes to the city office and reports a diarrhea. He does not come with a specimen of his stools in his hands.

I do not think there is any more tenderness over the abdomen, but there may be over the liver. At that time the range of temperature varies very slightly, and when he gets into the hospital on restricted diet it goes down to normal.

There is no question about these cases having liver abscess. The abscesses were very small, I suppose. One man lost thirty pounds in weight. Almost all the cases we have here are cases we saw after they had been sick for some time and suffered relapse.

Examination of the Vision of School Children.—One of the most important events of the year in this department was the appointment in the spring of eight ophthalmic surgeons by the School Board of London, who were directed to visit the schools and to test the vision of the children. Upwards of 17,000 children were examined, with the result that about 8 per cent of the boys and 11 per cent of the girls in all the standards were found to have seriously impaired vision. The visitation of these schools is of importance as an indication of the public feeling in regard to the hygiene of the young and to the adoption of measures for the prevention of disease rather than for the cure of it. The difficulties attendant upon such inquiries are very great, but it is obvious that the information to be gained will enable the School Board to give directions in regard to the nature and amount of work requiring close attention to be done which will ultimately prove of great service to the community. The influence of close attention, whether in reading or writing or sewing, in the production of myopia, the rate of advance in that condition and its relation to more deeply situated disease of the tunics of the eye, the etiology of astigmatism, and many other conditions will in process of time be ascertained, and evil effects will be guarded against, or, if possible, abolished.—*The Lancet.*

THE AMERICAN PRACTITIONER AND NEWS

"NEC TENUI PENNÂ."

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H. A. COTTELL, M. D., M. F. COOMES, A. M., M. D., Editors.

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PUBLISHERS' NOTICE.

Circumstances which the editors and publishers of THE AMERICAN PRACTITIONER AND NEWS could not control have prevented the issuance of the journal at the proper dates, and in order to place the journal out on time it has been determined to publish the issues for April, May, and June as double numbers. We trust that our friends and patrons will understand and appreciate our efforts to issue the journal promptly. In the future the readers of this journal may expect it on their tables promptly the first and fifteenth of each month.

THE USE OF THE DIGESTIVE FERMENTS.

The frequency with which the digestive ferments are prescribed make it important that there be a clear understanding as to the indications for their use. Pepsin is supposed to correct almost all forms of indigestion where the trouble is referred to the stomach, and to that end it is given frequently when there is no indication for it whatever. As a matter of fact pepsin is rarely indicated to correct indigestion resulting from the use of albuminoids, as lean meat, eggs, etc., while on the other hand there are many who do suffer from the indiscriminate

and injudicious use of starchy foods. Entirely too much bread is consumed by the average American, and the result is that many of them suffer from what may be properly called starch indigestion, and it is in this class of cases that pepsin is usually prescribed, while in reality it is the diastase that is needed. Especially is this true where there is a tendency to the rapid accumulation of gas in the stomach and intestines soon after a meal. It is a safe rule to prescribe diastase when you think of giving pepsin, because there is only about one case in a thousand in which pepsin would do any good.

Special Notices.

The attention of our readers is called to the advertisement of Robinson-Pettet Company, which appears on third cover page of this issue.

This house is one of long standing, and enjoys a reputation of the highest character. The preparations referred to we commend specially to the notice of practitioners.

A Most Seasonable Suggestion.—As the time is fast approaching when there is a demand for cough remedies, it will not be amiss to present a suggestion and a good remedy. In place of opiates, which always dry up expectoration, disturb digestion, cause constipation, and render the patient uncomfortable and drowsy, it is desirable to employ the most efficient and popular cough sedative of the present day, namely, Antikamnia and Heroin Tablets. This remedy relieves cough by its soothing effect upon the air-passages, but does not interfere with expectoration, and, in fact, renders it easier by stimulating the respiratory muscles. Only a very small dose, one tablet every one, two, or three hours, for adults, is required to produce a satisfactory result.—*Notes on New Pharm. Products.*

Sanmetto in Frequent Incontinence in the Aged, in Enuresis Nocturna in Children, and in Pre-Senility.—I have had good results from the use of Sanmetto in nocturnal enuresis of children; also have prescribed it in cases of frequent micturition in old people, with marked benefit; also find it beneficial in pre-senility. I think it is a good medicine in all cases where anything of its nature is indicated.—S. W. Badger, Athens, Ga.

Aletris Cordial Rio is an emmenagogue, not abortifacient. It cures congestion of the uterus and ovaries, and favors the occurrence of the menstrual discharge. It is also especially appropriate when the amenorrhea depends upon anemia. It regulates menstruation, and is useful in all the derangements of menstruation, namely, amenorrhea, dysmenorrhea, and metrorrhagia, provided these disturbances be idiopathic. By curing menstrual disease, a common cause of sterility, it will also cure the sterility. It is also recommended in erosions of the cervix and vulvar eczema.

THE

AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

VOL. XXXV. LOUISVILLE, KY., MAY 1 and 15, 1903. NOS. 9, 10

Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

REPORT OF HYSTERECTOMY FOR INVERSION; PROSTATECTOMY FOR HYPERTROPHY; APPENDICITIS COMPLICATING PREGNANCY.*

BY IRVIN ABELL, M. D.

Professor of Genito-Urinary Surgery, Louisville Medical College; Lecturer on Surgery, City Hospital Training School; Visiting Surgeon Louisville City Hospital.

The following cases were thought to be of sufficient interest to justify reporting them for your consideration this evening, the first on account of its rareness, the second on account of the widespread attention which modern treatment is attracting to similar cases.

The first case is one of complete inversion of the uterus consecutive to parturition, the patient being a girl fifteen years of age, and was seen with Dr. Hayes at fifth month of pregnancy. Playfair estimates this accident to occur once in 190,800 deliveries, and Beigel, from his study of statistics, arrives at about the same conclusion, or 1 to 190,000. Crosse collected from literature four hundred cases of inversion and found three hundred and fifty to be secondary to labor, while fifty followed the efforts of the uterus to expel a neoplastic growth.

This girl endeavored to keep her condition from the knowledge of her parents. When questioned by them after the appearance of abdominal enlargement she assured them that she was not pregnant, and even after labor started denied the possibility of such, and continued on her feet, resulting in the delivery of the fetus whilst the mother was in the upright position. The cord not being of sufficient length to permit of the fetus

*Read before the Louisville Clinical Society, April 14, 1903. For discussion see page 342.

reaching the floor, was broken by the fall. The parents of the patient called in one other than a regular practitioner of medicine, who attempted delivery of the placenta by traction on the cord, and only desisted from the unsuccessful effort on account of the patient's screams. This was at 10 p. m. The girl was placed in bed and no further effort was made to deliver the placenta, which came away twelve hours later. Following its delivery there was a free flow of blood, which continued some time, and so debilitated the patient that the family physician was called. This was twenty-four hours after delivery; hemorrhage had ceased, and his treatment consisted in the employment of such remedies as would prevent her immediate death from exhaustion. I saw the patient with him the following morning, at which time she was extremely weak, pulse so rapid as to prevent accurate counting, and a hasty examination revealed a large mass in the vagina, around which I could with difficulty sweep my finger and locate the contracted cervix above. The patient seemed to be on the verge of death from hemorrhage, and the administration of an anesthetic for the purpose of effecting a reposition of the uterus was not to be thought of. The treatment employed was supportive, as it was thought best to permit the patient to thoroughly rally from the severe hemorrhage before attempting any radical treatment. This she seemed to do very slowly, her pulse during the first week varying from 150 to 160, temperature 99° to 101°; during the second week pulse 130 to 150, temperature 101° to 102½°, and at the middle of the third week the pulse reached 120, temperature remaining about the same. It was decided to remove the uterus at once, as it had become infected, causing high temperature and necessitating frequent douching to remove the foul discharge.

As the patient was still quite anemic, and in no condition to stand prolonged anesthesia or prolonged operation, the following method was adopted: Under chloroform anesthesia the cervix was opened in front and behind, clamps applied to the intervening tissue containing the uterine arteries, and the mass cut away. As you will see from the specimen, this left the ovaries and a portion of the cervix; a strip of gauze was introduced into the peritoneal cavity, the vagina packed, and the patient removed to her bed, the entire time requiring about fourteen minutes. Immediately following this her temperature became normal, pulse became slower and stronger, and she continued to improve, being given chalybeate tonics and a generous diet, until now, a little over five weeks since her accident, she is enjoying her former good health.

The second case is one of senile hypertrophy of the prostate, in which a median perineal prostatectomy was done for its relief. The patient was seventy-four years of age and had shown symptoms of urinary obstruction since his sixty-second or sixty-third year. At the time he came under observation he had had complete retention for several weeks, necessitating the frequent introduction of the catheter ; this was not in his case an easy matter, so that he required the services of an attendant. Carbolic acid was used to sterilize the catheter, and on one occasion the attendant failed to wash it in water before introducing, resulting in a severe burn of the urethral mucous membrane and consequent urethritis. Following this accident the patient's temperature, became much higher, 102° to 103½°, and the introduction of the catheter occasioned severe pain. It was thought best to supply drainage other than through the urethra, and this was done by making a suprapubic cystotomy. Following this, the general and local condition rapidly improved and in the course of two weeks' time was so good it was decided to remove the hypertrophied portion of the gland, after first determining that his kidney had not been seriously damaged by his long-standing cystitis and obstruction. Under chloroform anesthesia a free median dissection was made down to the membranous urethra and the triangular ligament divided at the floor of the urethra, in order to permit of freer introduction and manipulation of the finger. On account of the length and distortion of the prostatic urethra it was impossible to introduce the finger into the bladder through the perineal incision. The patient was placed in the exaggerated lithotomy position, the capsule of the prostatic gland opened through the prostatic urethra and enucleation of the right lobe, from below upwards, accomplished with the index finger. An incision through the capsule of the prostate on the left side of the urethra was next made and the left lobe removed by dissection with the finger. In removing this the greater part of the mucous membrane of the floor of the prostatic urethra was brought away with the mass of hypertrophied tissue. The finger could now readily be introduced into the bladder, and upon further examination the so-called third or median lobe was found and removed. You will see from the specimens that the hypertrophy existed chiefly on the left side and in the posterior part of the gland, just under the vesical neck. The material removed weighed eleven drachms, being three or four drachms more than the weight of the entire normal gland. There was very little hemorrhage, it being easily controlled by a light gauze packing around the drainage-tube. The time

occupied by the entire procedure was about twenty-four minutes, the patient leaving the table in good condition. The perineal wound healed readily, but some difficulty is being experienced in securing a closure of the suprapubic sinus. A small opening through which a grooved director can be forced still persists, it now being over three months since the suprapubic cystotomy was made. The tonicity of the bladder has greatly improved and he is now able to void his urine without difficulty, although the suprapubic sinus still leaks at each urination.

The third case is one of appendicitis complicating pregnancy, seen with Dr. Gossett and operated on this morning. The patient has had four attacks of appendicitis, the first three years ago, the other three during the past year. She is now about five months pregnant, and since the uterus began to rise into the abdomen has suffered almost continually with pain and distress in the appendicular region. Fearing the dangers of an acute attack or that she would abort, operation was advised and accepted. The appendix was by measurement five inches in length and passed over the lower end of and up behind the head of the colon, the whole being imbedded in adhesions accompanying inflammatory thickening; it was removed by opening its peritoneal coat and dissecting it from its bed, there being practically no mesentery present. It was very evident from the relation of the parts that her pain and distress were due to pressure of the gravid uterus.

LOUISVILLE.

THE PELVIC URETER; THE PELVIC FLOOR SEGMENT (THE VISCERAL, MOBILE, OR CONVERGING SEGMENT).

BY BYRON ROBINSON, B. S., M. D.

I have divided the pelvic ureter in two segments, viz., (*a*) the lateral pelvic segment, and (*b*) the pelvic floor segment. In this article I will consider the pelvic floor segment of the ureter, which, on account of hysterectomy, vesical, and vaginal relations as well as ligation of the arteria uterina, is the most important of all ureteral segments.

The entrance of an organ in the surgical field revives its anatomy and topography. Surgery is the father of anatomy. Ureteral surgery has given rise to new surgical epochs. Methods of examinations and new operations on the ureter have necessarily created increased anatomic details. Explorations of the ureter have made new epochs in urinary pathology and the exact course and topography of the ureter must be recognized. Anatomic generalities are insufficient, exact relations are demanded, especially in the pelvic floor segment of the ureter. From more exact anatomic methods, accidents to the ureter during surgical intervention, and subsequent ureteral fistula, are successfully relieved. Surgery has dignified the pelvic floor segment of the ureter into the most important of ducts. To understand practically the anatomy and topography of the pelvic floor segment of the ureter, it is necessary to make dissections, injections of air, fluids, solidifying material and the use of X-rays with the pelvic organs *in situ* and extirpated. The aim of this investigation is to give as precise an exposure as possible of the course and topography of the pelvic floor segment; to study its reciprocal relations with the pelvic organs, especially the arteria uterina and uterus (resting or elevated in pregnancy), as well as the vesical, vaginal, and rectal relations; also to deduce practical conditions for surgical intervention of the ureter in any condition.

For practical purposes the pelvic floor segment of the ureter, visceral or converging portion, I shall adopt: First, the anatomic plan, and second, the topographic plan.

1. *Anatomic Plan.* First and foremost in the anatomic plan will be considered the following data: The location of the pelvic floor segment of the ureter is extra-peritoneal, closely adjacent to the pelvic floor. It begins at the ureteral elbow near the ischial spine, and ends at the distal ureteral orifice or the proximo-lateral angle of the trigonum

vesicæ. In pueritas it is located proximal to the lesser pelvis for the first year, gradually moving distalward for the first three years of postnatal life. In general the pelvic floor segment is located between the peritoneum and pelvic floor.

In pregnancy it moves proximalward to the level of the pelvic inlet. In subjects possessing certain kinds of tumors, as of the ligamentum latum, the ureter may be forced proximalward. The position of the pelvic floor segment is especially subject to changes, due to distention and contraction of adjacent viscera. It is located along the lateral and ventral fornix and between the base of the bladder and the ventral vaginal wall. It is embedded in vast vascular plexures and dense areolar tissue from the junction of the bladder and vagina to the ischial spine or ureteral elbow. The location of the pelvic floor segment of the ureter is obliquely across the ventral portion of the pelvic floor.

Divisions of the Pelvic Ureter. I have assumed for practical purposes, as a general division of the pelvic ureter, (1) the ureter of the lateral pelvic wall and (2) the pelvic floor segment of the ureter. However, other divisions and subdivisions are useful and should be defined in order to become familiar.

The lateral pelvic ureter is the equivalent of the descending or fixed portion—*pars parietis pelvina*. The pelvic floor segment is the equivalent of the visceral, mobile, or converging portion—*pars visceralis pelvina*. Also the pelvic ureter (*pars pelvina*) may be divided in three general segments by the ligamentum latum. The lesser pelvis is divided by the ligamentum latum, united to the uterus, in two secondary cavities, viz., pre-uterine and retro-uterine cavities. The ureter penetrates into the first or dorsal cavity, whence it arrives at the ligamentum latum (traversing its base), and finally journeys to the bladder in the pre-uterine cavity. We hence have three segments: (*a*) the retro-uterine, ureteral, or post-ligamentary segment of the ureter, that is, the part dorsal to the ligamentum latum; (*b*) the intra-ligamentary segment of the ureter, that is, the part enclosed within the base of the ligamentum latum, and (*c*) the pre-uterine or pre-ligamentary segment of the ureter, that is, the part ventral to the ligamentum latum. The intra-ligamentary and pre-ligamentary segments are the most important portions of the ureter. For the purpose of practical utility in surgical intervention I have also made subdivisions of the pelvic ureter (*pars pelvina*), as (*a*) the uterine segment; (*b*) the vesical segment; (*c*) the

vaginal segment of the ureter. The vesical segment may still further be divided into the extra-mural and intra-mural segments. A practical surgical landmark in the *pars pelvina ureteris* is the ureteral elbow, which forms a marked division between the lateral pelvic and pelvic floor segments of the ureter. The ureteral elbow is located adjacent to the spina ischiadicha. When the ureter abandons the lateral pelvic wall in order to direct itself obliquely toward the bladder it describes a curve quite well marked, so that the division between lateral pelvic and pelvic floor segments of the ureter is distinct at the elbow.

A practical surgical division of the pelvic ureter is produced by the distal arterio-ureteral crossing, that is, the point where the ureter and arteria uterina cross each other, divides the ureter in a pars proximal, larger segment proximal to the arterio-ureteral crossing and a pars distal, a shorter segment distal to the arterio-ureteral crossing. The proximal ureteral segment extends from the distal border of the vasa iliaca to the distal arterio-ureteral crossing. The distal ureteral segment extends from the bladder to the distal arterio-ureteral crossing. It is important to observe that where the arteria uterina and ureter cross each other, the ureter is spindle-shaped, which would aid ureteral surgery by presenting ample ureteral walls and lumen. This anatomic and physiologic spindle is due mainly, no doubt, to the periodic hyperemia experienced by the ureter through the arteria ureterica distal during functions of the tractus genitalis. However, it may be remembered that spirality, dilatations, and constrictions are a heritage of ducts originating in the corpus Wolffii. The limitations are from the ureteral elbow to the distal ureteral orifice or from the elbow to the trigone. It is one and a half to two inches in length. In general the limit of the pelvic floor segment is the ischial spine and the junction of the proximal and middle thirds of the vagina. The direction is ventralward and medianward from ischial spine to vesical trigone. It is the segment of an arc, the concavity of which is directed ventralward and dorsalward. It crosses dorsal to the arteria uterina at an acute or right angle, generally in the form of an italic letter X. It lies practically parallel to the pelvic floor. The ureteral concavity is in relation with the peritoneum, ligamentum rotundum, and base of the vesica urinaria. The ureteral convexity is in relation with the obturator vessels, arteria umbilicalis.

The ureter in the lumbar and iliac segments is applied to the same transverse plane; the lateral pelvic segment is almost in a dorso-ventral

plane, while the pelvic floor segment is directed obliquely across the ventral segment of the pelvic floor.

The tissue matrix of the pelvic floor segment of the ureter is extensive and important. The ureter rests in three kinds of material as a bed, viz: (*a*) Extensive universal areolar and connective tissue, endowing it with a wide range of motion; (*b*) A vast vascular bed, especially at its distal end, which passes through large venous plexuses; (*c*) It is surrounded by a network of sympathetic nerves. The distal ureter, the pelvic floor segment, is quite analagous to the proximal ureter, the calyces and pelvis, as both are lodged in extensive beds of areolar and connective tissue; both are widely mobile, both are loosely connected to the peritoneum; both are localities for frequent surgical interventions, as both entertain calculi; both are intimately associated with large vascular streams; both are similarly fixed at their proximal and distal end, the one by the kidney and the other by the bladder. Both are alike affected in splanchnoptosia. The pelvic floor segment is surrounded by rich quantities of fat, which embraces the ureter with more mobility than if it were planes and bands of fibrous or fascial tissue. This segment of the ureter is more mobile at its distal than at its proximal end; the vast plexus venous, surrounded by extensive beds of areolar and fatty tissue, separate the ureter from the musculus obturatoria and levator ani.

The form of the ureteral pelvic floor segment is, first, in general a fusiform spindle; second, a double spindle of equal or unequal size. The chief spindle is at the distal end and corresponds to the distal arterio-ureteral crossing or the arteria ureterica distal; third, it may have a uniform duct.

The dimensions of the pelvic floor segment is two inches or less in length. The main spindle may be from one half to one and a half inches in length. The smaller spindle is less in length. The diameter of the main spindle may be one fourth or one third inches. The lesser spindle is considerably smaller in diameter. The diameter of the distal end of the pelvic floor segment is of extreme surgical importance, being about one tenth of an inch, hence it will obstruct calculi, especially at the junction of the vesical mucosa and muscularis, where I have noted calculi in autopsies which dissected the vesical mucosa from the vesical muscularis.

The symmetry of the pelvic floor segment of the ureter is not bilateral in form or location. The form and division of spindles do not

correspond exactly on both sides. The left ureter is nearer the middle line of the pelvis than the right, *i. e.*, about one sixth of an inch nearer the left cervical border. However, since the internal genitals in adult life are frequently found deviating from the middle of the pelvis through non-development or pathologic process, this one sixth of an inch is closer to the uterine border on the left side and can not be relied on. If the fundus possesses a right deviation, as some claim (however, I know it is rare), it will be nearer the right pelvic ureter than the left, while the cervix will be nearer to the left ureter than the right. The distance of separation between the pelvic floor segment of the ureter (*a*) at the elbow or ischial spine is about three inches; (*b*) at the distal arterio-ureteral crossing two and a half inches; (*c*) at the os internum, two and a half inches; (*d*) at the external os two inches; (*e*) at point of penetrating bladder, one and a half inches; (*f*) at the distal ureteral orifice, one inch.

The fixation apparatus of the pelvic floor segment of the ureter consists (*a*) of a vast, loose, mobile cellular bed infiltrated with fat; (*b*) a vast network of arterio-venous plexuses and nerve strands. The chief fixation point is the bladder. The most important surgical *fixum punctum* is the distal arterio-ureteral crossing. The pelvic floor segment of the ureter, unlike the lumbar segment, is not intimately connected to the peritoneum, as it practically becomes an organ of the parametrium. The extensive vascular surroundings of the pelvic floor ureter endows it with a strong fixation apparatus. It has a wide range of motion, moving with bladder, vagina, and uterus (pregnant) and to some degree with an extremely distended rectum.

The cellular bed of the pelvic floor segment of the ureter is of sufficient importance to demand a separate description. The course of the ureter is chiefly in the parametrium at some distance proximal to the levator ani muscle. It passes between fine, shiny planes of fibrous cellular tissue lying between the peritoneum and the levator and fascia superior.

The fascia propria ureteris surrounds the ureter as a fine, thin, fibrous, shiny, fascial envelope, which passes distalward, blending with the ureteral sheath. The distal two or more inches of the ureter aids in its fixation apparatus by a distinct fibro-muscular sheath. This enables the adjacent vessels, nerves, and fibrous tissue strands to fix the ureter more strongly. The ureteral sheath also increases the diameter of the ureter, making a larger and firmer bed. The pelvic

ureter is surrounded by a fibro-cellular bed, infiltrated with fat. It is a kind of aponeurosis, which may be separated to some degree in fascial planes. This ureteral fibrous envelope surrounds the whole pelvic floor segment and blends with the ureteral sheath at the distal end of the ureter. The fibrous ureteral envelope blends with the adjacent paniculus adiposes and in the proximal end of the pelvic floor segment of the ureter it sends fibrous strands to the peritoneum; however, at the distal end of the ureter, where the distinct ureteral sheath exists, it is not an organ fixed by the peritoneum, but by the parametrium. The pelvic ureter is securely ensconced and deeply buried in fascial planes and fibrous areolar tissue, and hence fibro-cellular tissue will be its fixation apparatus.

Practically the proximal end of the pelvic floor segment only will strip with peritoneum, that is, the part of the ureter proximal to the ligamentum latum. From the point on the dorsal blade of the ligamentum latum, where the ureter enters its base to the ureteral entrance into the bladder, the ureteral fixation apparatus is subperitoneal tissue subserosum. This anatomic fact also means that the ureter is neither fixed by strands to the peritoneum, nor nourished by vessels adherent to the peritoneum. The whole distal ureter may be stripped from the peritoneum without fear of nourishment being disturbed. The fixation apparatus of the pelvic floor segment of the ureter allows it to move within a wide range of healthy zone.

Inspection of the pelvic floor segment of the ureter in a non-dissected subject presents nothing of value as to course, location, or relation to viscera, as it is too deeply buried by viscera and connective tissue. Surgically the pelvic floor ureter can be attacked in its whole course, intra- or extra-peritoneally. It is surgically the most important segment of the ureter, on account of its relations to the tractus genitalis and tractus intestinalis, as well as its liability to be the seat of calculi per vaginam; one can successfully execute surgical proceeding on the distal three fourths of the pelvic floor segment without entering the peritoneum.

The proximal fourth of the pelvic floor segment presents difficulties per vaginam. The pelvic floor segment of the ureter may be attacked from its proximal side by incising the peritoneum; however, it is a tedious, bloody operation and executed with difficulty. If a considerable ureteral spindle exists, it will facilitate matters in case of attempted anastomosis by presenting ample wall and lumen for manip-

ulation. A serious difficulty arises in ureteral surgery of the pelvic floor segment, and that is deficient ureteral wall and lumen for surgical manipulation. Besides, nearly all pelvic ureteral surgery arises from trauma on the distal one and a half or two inches, or perhaps rather in the distal one inch of the ureter, and this segment of the ureter is of narrow lumen, thick wall, and intimately related with the vesical wall.

2. *The Topographic Plan.* The topography of the pelvic floor segment of the ureter is the most important of ureteral segments in diagnosis and surgical intervention. It will be considered under four heads:

(*a*) *Holotopy.* (Relation to general body.) 1. The pelvic floor segment of the ureter is not bilaterally symmetrical; the left lies nearer the median line, about one sixth of an inch nearer the left cervical border. 2. They converge obliquely medianward and ventralward across the ventral segment of the pelvic floor. 3. They extend from the ureteral elbow, adjacent to the ischial spine, to the bladder. 4. The pelvic floor segment of the ureter surrounds the tractus genitalis bilaterally like two converging arms. 5. This segment of the ureter, unlike other ureteral segments, is practically an organ of the subserosum and not of the peritoneum. 6. The pelvic floor segment of the ureter lies bilaterally dorsal to the arteria uterina, that is, the important vessels pass between the ureter and the peritoneum exactly as in lumbar ureteral segment, in order that during proximal movements of the uterus in pregnancy the ureter and uterine artery may not become flexed, angulated. 7. In labor the pelvic floor segment of the ureter passes proximal and ventralward against the ventral abdominal walls. 8. They are located in the distal end of the lesser pelvis, extra-peritoneally in fibro-cellular tissue and endowed with a wide zone of motion. Their wide range of movements is their insurance or protection. 9. The proximal ends are about three and a half, the distal ends one inch separated. 10. They are accessible for palpation and for surgical purposes per rectum and vaginam.

(*b*) *Skeletopy.* (Relation to osseous skeleton.) 1. The pelvic floor segment of the ureter extends from near the ischial spine to near the distal border of the symphysis pubis, a distance of about two inches. 2. During labor they will lie against the horizontal ramus of the pubis. 3. It is possible that the pelvic floor segment of the ureter is occasionally traumatized between fetus and bony wall during labor. 4. The bony protection does not prevent successful surgical application.

(*c*) *Syntopy.* (Relation to adjacent organs.) The syntopic relations of the pelvic segment of the ureter is significant for anatomic consideration, palpation, diagnosis, vascular and visceral relations as well as surgical intervention. The topography of the pelvic floor segment will be considered in regard to: 1. Viscera (tractus visceralis); 2. Vessels (tractus vascularis); 3. Nerves (tractus nervosa); 4. Muscles (tractus muscularis); 5. Lymphatics (tractus lymphaticus).

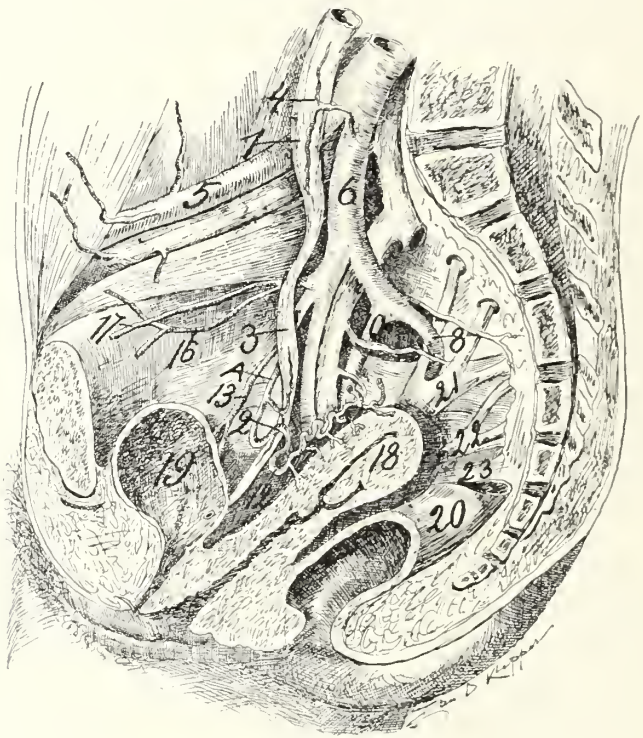


FIGURE 1.

(*d*) *Idiotopy.* (Relation of component segments.) The idiotopic relations of the pelvic ureter consists in the difference of the ureteral caliber, as the constricted portion in the bladder wall obstruct calculi, while the spindle-shaped dilatations entertain calculi. The spindle of the pelvic ureter is liable to pathologic dilatations, due to change of blood-supply from the arteria ureterica distal in functional conditions and senescence of the tractus genitalis. The dilated pelvic ureteral spindle, from ample wall and lumen, is the location of selection for ureteral surgical intervention. The pelvic floor segment of the ureter consists of (*a*) a fusiform spindle, one fourth to one third inch in diameter and one and a

half inches in length and a constricted portion in the bladder wall, the distal ureteral isthmus about one ninth inch in diameter. The idiotopic relation of the pelvic floor segment of the ureter is (*a*) a fusiform spindle, in intimate anatomic and physiologic relation to the uterine artery, and (*b*) a constricted distal ureteral end located for three fourths



FIGURE 2.

of an inch between the elements of the bladder wall, which forms one of the most perfect anatomic valves known. The distal end of the ureter does not fuse with the bladder elements, but is surrounded by its own fibrous sheath, and both ureter and bladder functionate separately.

The Pelvic Ureter. Figure 1. A cut to illustrate the right wall of the pelvis in order to demonstrate vascular and ureteral relations, as well as what pelvic visceral territories may be exsanguinated by ligations of branches or trunk of the internal iliac. It shows the division and distribution of the internal iliac. In this cut the sacrum is

preserved to show further relations: 1, Middle arterio-ureteral crossing; 2, Distal arterio-ureteral crossing with its arterio-ureterica; 3, Pelvic distal ureteral spindle (urinal reservoir); 4, Arteria ureterica media, supplying the proximal or lumbar spindle (urinal reservoir); 6. Internal iliac; 8, Superior gluteal; 10, Inferior gluteal; 11, Internal

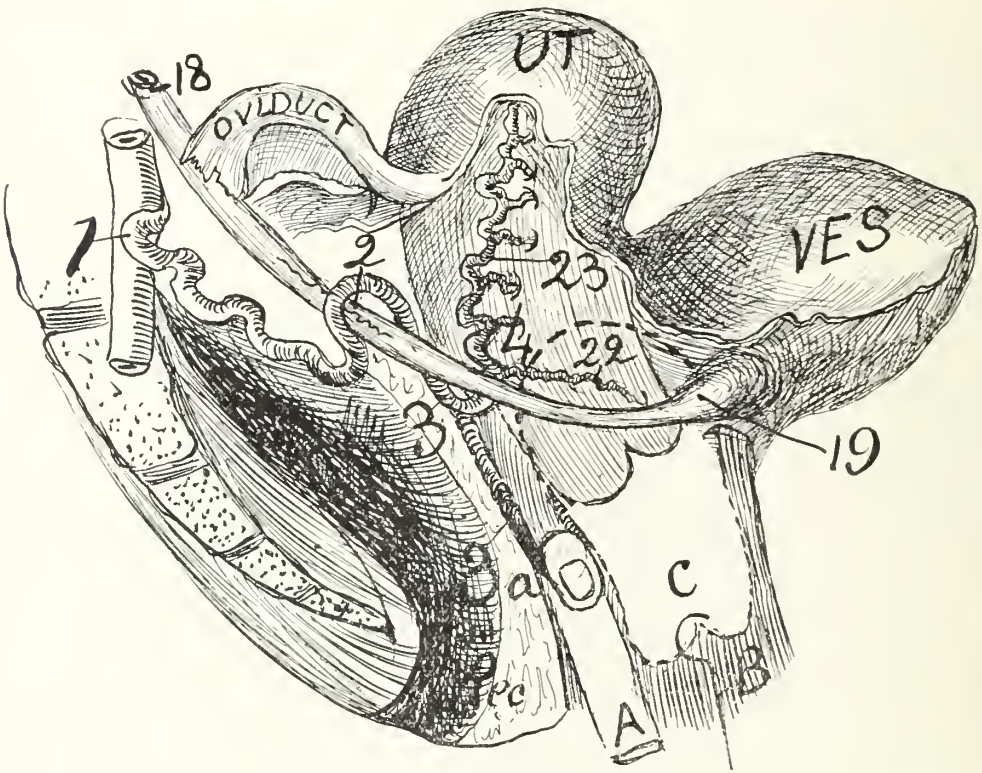


FIGURE 3.

pudic; 12, Cervical loop or internal portion of the pelvic floor segment of the utero-ovarian artery; 13, Vesicle arteries; 16, Obturator; 17, Hypogastric; 18, Uterus with uterine segment and rami laterales uteri in typical blood-supply; 19, Bladder.

This cut shows that, on account of the irregularity of origin, number, and distribution of the branches of the internal iliac, no definite pelvic visceral territory can be exsanguinated without ligating the trunk of the internal iliac, and thus sacrificing all of its branches.

Note that the ureter crosses the common iliac, courses dorsal to the internal iliac, and does not lie parallel to the pelvic floor segment

of the utero-ovarian artery. The ureter crosses the uterine artery twice in this cut, once ventral aud once dorsal to A, the uterine artery. In such cases the ureter is easily dissected from the artery. A. Pelvic

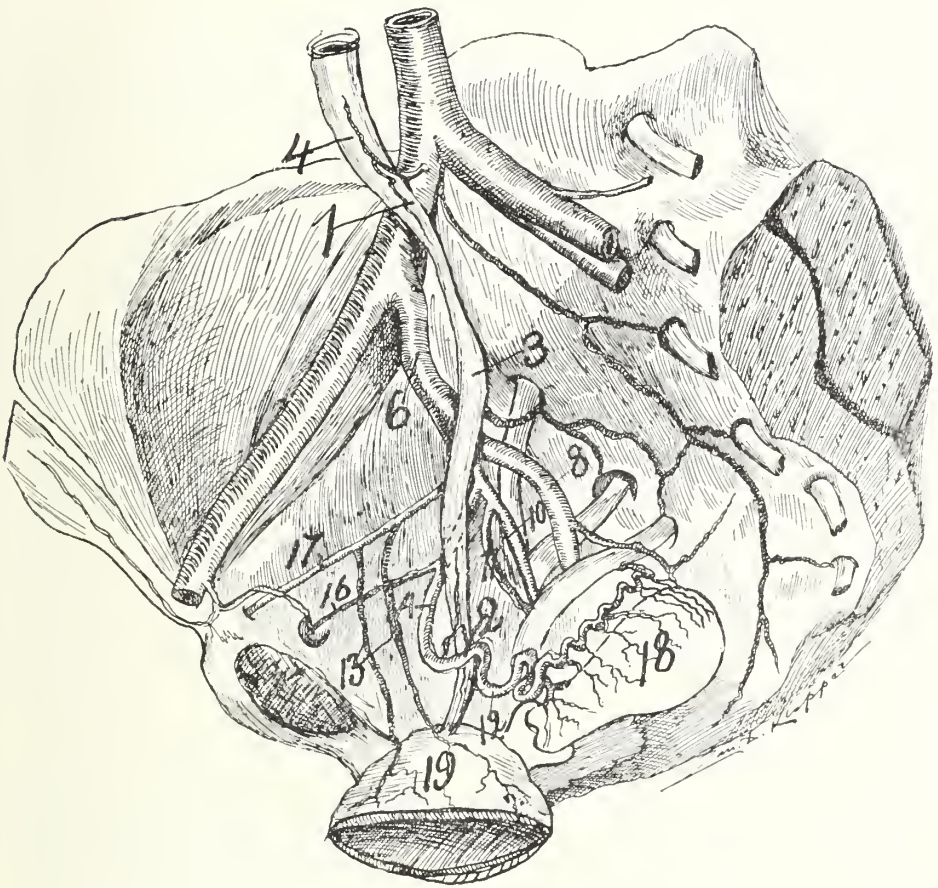


FIGURE 4.

floor segment of the utero-ovarian artery, with the usual curve convexity proximalward.

Figure 2. A halftone from an X-ray of a multipara thirty-six years of age. The specimen was injected with celloidin and vermilion after removal from the body. Flexible copper wire was passed through each ureter, the outline of which may be noted in the cut. 2, 2, Distal arterio-ureteral crossing. 19, Distal orifices of ureter. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, the utero-ovarian artery.

The Pelvic Ureter. Figure 3. A cut to illustrate the lateral cervical triangle (2, 4, 19) normally and reversed during operation. The finger is around the cervical loop (2, 3a, 4). The lateral cervical triangle is formed by 2, the distal arterio-ureteral crossing, 4, the internal os, and (19) the vesicle orifice of the ureter. The cervical loop (2, 3, 4) forms the proximal side, the ureter (2, 19) forms the distal side, and the lateral border of the cervix and vagina (4 to 19) forms the median disc of the lateral cervical triangle. 3a shows the cervical loop, forming the distal, instead of the

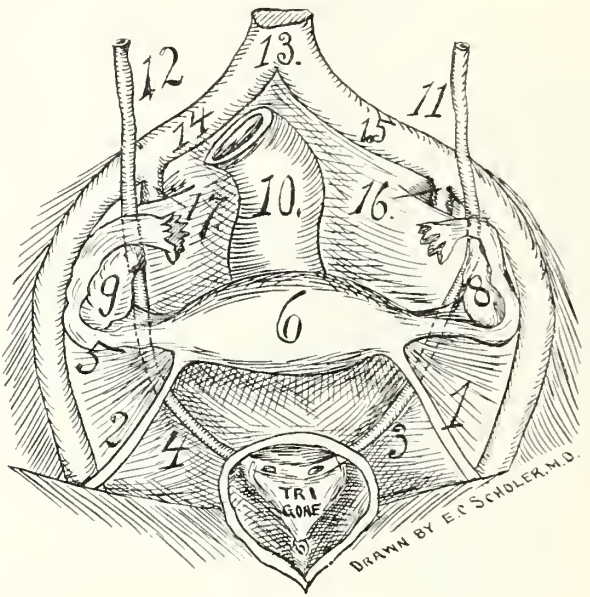


FIGURE 5.

proximal side of the cervical triangle, which is reversed during vaginal hysterectomy. 1, origin of the pelvic floor segment of the utero-ovarian artery; 2, the distal arterio-ureteral crossing (also the ureteral loop and distal arteria ureterica); 3, cervical loop; 4, internal os; 19, ureter penetrating bladder wall; 22, ramus cervices; 23, rami corporis; UT, uterus; VES, bladder; A, finger hooked around the cervical loop, 3a; B, traction forceps; C, the uterus drawn distalward in the vagina; Rec., rectum.

The Pelvic Ureter. Figure 4. 1, 3, 19, 2, the distal arterio-ureteral crossing; immediately proximal to it is the distal arteria ureterica, supplying the pelvic ureteral spindle.

Figure 5. Pelvic ureter, as observed by looking distalward in the open pelvis. From the trigone to 9, 12, pelvic ureter. Left side 11, 8, 3 to trigone, pelvic ureter.

CHICAGO, ILL.

REASONS FOR BELIEVING THAT THE ONLY WAY IN NATURE* FOR YELLOW FEVER TO BE CONTRACTED BY MAN IS FROM THE MOSQUITO.†

BY JOHN W. ROSS, M. D.

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This article is intended mainly for the busy medical man, who, from want of time and lack of opportunity, has not kept up with the details of the remarkable revolution which has taken place during the last few years, in our knowledge of the etiology and prevention of yellow fever.

Havana, the chief focus and home of yellow fever, was constantly afflicted by that disease, never a month without deaths from it, from 1762 to September, 1901, a period of about one hundred and forty years. Eight months subsequent to the beginning of the American antimosquito sanitary work, which was based entirely upon the mosquito idea of the propagation of that disease, yellow fever had disappeared altogether from Havana, and since, up to the present time—an interval of fourteen months, embracing two autumns and a summer—not a single case of the disease has occurred in that city. The intervening summer was an unusually hot one, and the city contained an unusually large number (at least forty thousand) of recently arrived non-immunes—just the conditions which under the former régimé must inevitably have produced a severe epidemic of yellow fever.

Sanarelli's proposed solution of the yellow fever problem, of which we had such high hopes four or five years ago, has been proven untenable by numerous high authorities and skilled investigators. The United States Army Yellow Fever Commission, composed of Major Walter Read and Doctors Carroll, Lazear, and Agramonte, United States Army, which visited Havana first in the early summer of 1900, investigated its claims and found that :

"1. The bacillus icteroides, Sanarelli, stands in no causative relation to yellow fever, but when present should be considered as a secondary invader in this disease.

"2. The mosquito serves as the intermediate host for the parasite of yellow fever."

*Yellow fever can with great certainty be produced by inoculating non-immunes with blood taken from persons affected with that disease; but, for obvious reasons, this can not be called a natural method.

†Read before the American Public Health Association, New Orleans, La., December 10, 1902. Reported in New York Medical Record.

This commission returned to the United States the same summer, two of its brave members having had yellow fever, from which one of them, Dr. Jesse W. Lazear, died, thereby adding one more noble name to the long roll of medical martyrs who have yielded up their lives trying to help their fellowmen.

The latest utterance I have read about the bacillus icteroides, that of Dr. Porthie, a member of the recent "United States Public Health and Marine Hospital Commission on the Investigation of the Yellow Fever and Mosquitos in Vera Cruz," is, in part, as follows :

"The bacillus Sanarelli was doomed. The work of Reed and Carroll as to the transmission of yellow fever by the *Stegomyia fasciata* has been entirely corroborated." (Journal of the American Medical Association, November 8, 1902, p. 1207).

In 1881 Dr. Charles J. Finlay, a scholarly scientist, a British subject, born in Cuba, and a resident of Havana, promulgated the theory (now an established fact) of the transmission of yellow fever by the mosquito, and singled out the guilty species, now called *Stegomyia fasciata*. For many years subsequently he conducted experiments and published numerous articles attempting to convince the medical profession of the correctness of his views. In one of his contributions, read at Buda-Pesth in 1894, he recommends the following measures against the propagation of yellow fever through mosquitos, which from our present point of view we may call prophetic :

"1. To prevent those insects from stinging yellow fever patients.

"2. To destroy, as far as possible, the mosquitos which have been infected.

"3. Finally, to consider any place unsafe so long as the last mosquitos which have stung yellow fever patients may be alive in it."

The beginning of this philosophic work of Finlay antedated by two or three years any of the mosquito-malarial theories and demonstrations. It occurred about the same time (but altogether independently) as the discovery by Sir Patrick Manson of the transmission of the *filaria nocturna*—the worm which causes elephantiasis Arabum—by mosquitos.

The brilliant work of Ronald Ross—1895–1899—Grassi, Marchiafava, Celli, and others, especially that of the first-named scientist, establishing the cognate fact of the conveyance of malaria by the anopheles mosquito, had great influence in leading to the demonstration of the transmission of yellow fever by mosquitos.

The clear-cut, scientific observations and classical contributions of Surgeon H. R. Carter, U. S. Marine Hospital Service, showing the interval (about two weeks) which occurs in houses between the first (infecting) case and the first group of cases secondarily infected ; so interesting and impossible to explain by the fomites theory, are now readily understood in the light of our present knowledge of the elaboration of the yellow fever poison in the body of the mosquito—that process requiring not less than twelve days.

The Army Medical Commission, presided over by Walter Reed, First Vice-President of this Association for the present year, whose recent untimely death—an incalculable loss to the medical profession and to humanity—we are now mourning, returned to Cuba in the autumn of 1900, and resumed their mosquito-yellow-fever investigations. The reasons given by Major Reed for taking up the mosquito problem were :

"1. Finding that Sanarelli's bacillus had nothing to do with the causation of yellow fever.

"2. The unsatisfactoriness of the proof of the propagation of the disease by fomites.

"3. The perfect demonstration by Ronald Ross, and the Italian observers, that the anopheles mosquito is the intermediate host and conveyer to man of the malaria parasite.

"4. Carter's establishment, published in May, 1900, of the two to three weeks' interval between the first (infecting) case of yellow fever in a house or ship and the subsequent outbreak or group of cases."

This commission's subsequent work continued during the remainder of the autumn and following winter, 1900-1901.

They produced thirteen cases of yellow fever by having non-immunes stung by contaminated mosquitos (*Stegomyia fasciata*). Three other cases were produced by direct inoculations of the blood of yellow fever patients.

These experiments were conducted in such a manner as to make it impossible for the patients to have contracted the disease in any other way. Each case was diagnosed positively as yellow fever by the official yellow fever commission of Havana, composed of such eminent experts as Finlay, Gorgas, Guitéras, and Albertina. The function of this commission was to make diagnosis of all cases reported as suspicious of being yellow fever.

The famous paper read by Major Walter Reed before the Pan-American Medical Congress, Havana, February, 1901, describes his flaw-

less procedures which leave no possible room for doubt that yellow fever is contracted by man from the mosquito. Nevertheless, the medical profession of Havana remained unconvinced, and similar experiments, with similar results, were repeated during the succeeding year inside the city of Havana, at Las Animas Hospital, of which I was at the time the director. An "Inoculation Station" was established in that hospital, under the immediate charge of Dr. John Guitéras. Eight experimental cases were then produced at Las Animas. The diagnoses were verified by the Yellow Fever Commission of Havana. During their illness the patients were unrestrictedly visited by the leading physicians of Havana.

Thus, it will be seen that twenty-one well-marked cases of yellow fever—Reed's thirteen and Guitéras's eight—representing the different varieties and intensities of the disease, were unquestionably caused by the bite of contaminated mosquitos, within the established incubation period (one to six days), with almost mathematic precision. Three of these mosquito-borne cases proved fatal, and the necropsy revealed the characteristic lesions of yellow fever. The demonstration of the fact that yellow fever is produced by the mosquito was then, for the first time, accepted as complete by the physicians of Havana.

It now remains to consider whether or not yellow fever is capable of being produced in nature in any other way. This question is so important, and doubt in regard to it so natural, that I shall give in detail two sets of experiments—one (1) conducted for its elucidation at Quemados, by the United States Army Commission, the other (2) at Las Animas Hospital by myself. In these two sets of experiments every possible effort was made to cause yellow fever by fomites, the result in each instance being a signal failure.

"1. There was erected at Camp Lazear (one mile from Quemados, and about seven miles from Havana) a small frame house with a cubic capacity of about 2,800 feet, tightly ceiled and battened, provided with small windows, so as to prevent a thorough circulation of air through the house, and with wooden shutters to prevent the disinfecting qualities of sunlight. The windows were closed by permanent wire screens with a 5 mm. mesh. The vestibule was protected by a solid door and a wire screen door, and the inner entrance by a second wire screen door. In this way the passage of mosquitos into the room was effectually excluded. The average temperature was kept at 76.2° F. for a period of sixty-three days, and precaution was taken to maintain sufficient humidity of the atmosphere. On November 30 three large boxes filled with sheets,

pillow-slips, blankets, and so on, contaminated by contact with cases of yellow fever and their discharges, were received and placed in the room. Most of these articles had been taken from the beds of patients sick with yellow fever in Havana. Many of them had been purposely soiled with the excretions of patients. These soiled sheets, pillow-cases, and blankets were used in preparing the beds in which the members of the hospital corps slept. During sixty-three days this building, thus furnished, was occupied by seven non-immune persons. Three of them occupied the room each night for twenty days. Later, a fourth box of clothing and bedding was added, some of it purposely soiled with the bloody stools of a fatal case of yellow fever. Two of them occupied beds from December 21 to January 10, every night wearing the very garments worn by yellow fever patients throughout their entire attacks, making use exclusively of their much-soiled pillow-slips, sheets, and blankets. At the end of twenty-one nights they went into quarantine (as had the former three) and were released five days later. Two other non-immunes occupied the same beds for twenty days more. The attempt, therefore, which was made to infect this building and its seven non-immune occupants during a period of sixty-three days was an absolute failure; all seven were released from quarantine in excellent health."

Later on some of the same men were bitten by yellow fever mosquitos, and promptly came down with yellow fever.

These formites experiments have been pronounced inconclusive by many medical men upon the grounds, chiefly, that they were conducted during the winter season, and in the country, outside the city.

The following extract from my "Report of Experiments with Yellow Fever Fomities at Las Animas Hospital, Havana, Cuba, September-November, 1901," read before the International Sanitary Congress, Havana, February 10, 1902, sets forth the principal details and results of the second set of experiments, in which the objections urged to the first set are removed.

"2. Two rooms were selected in buildings constructed of masonry, about one hundred and fifty meters apart, both within the hospital enclosure. These rooms were thoroughly renovated, provided with doors and windows of wire gauze—mosquito proof—being further protected by vestibules of the same material. All the cracks and rough places in the walls, ceilings, and floors were smoothly sealed; and an abundance of pyrethrum powder burned in the rooms, in order to preclude the possibility of the presence of any mosquitos. One of these

rooms was called the observation room, and the other the experimental room.

"The observation room was fitted out with furniture, utensils, bedding, and clothing, which had been thoroughly disinfected, so that there could be no suspicion of extraneous contamination.

"In the experimental room were placed numerous bundles containing clothing, bedclothes, and bedding, which had recently been used in the sick rooms and on the persons of patients ill with yellow fever; much of it badly soiled with discharges and excreta of said patients. These articles had been used by Venturo Trillo Ramos and Juan Lago, at the private hospital La Benefica, Havana (usually an infected place), and by patients in the hospital at Columbia Barracks, Quemados, Cuba. All these cases had been diagnosed as yellow fever in their respective hospitals, and confirmed as such by the Yellow Fever Commission of Havana. The case of Juan Lago and Vincente Real were fatal, the latter having presented, during its course and at the autopsy, unmistakable appearances of malignant yellow fever.

"Eight men, newly arrived on the island, five Spanish, two Italian, and one English, all healthy, by no possibility immune, were procured from the immigration station, Triscornia, across the bay from Havana, as subjects for our experimentation.

"Two of these men were placed in the observation room on September 27, and confined there for more than a week. At the end of that period they were transferred to the experimental room, where they were kept for seven days. They were then released and given light work in the hospital grounds. When they were removed from the observation room, two others of the subjects were placed therein for seven days—afterward taking their turn in the experimental room for the same length of time. In this way all eight of the men, after rigid physical examination, went through the observation and experimental rooms, two by two, emerging therefrom in good health, and remaining so until all possibility of having contracted yellow fever had passed away.

"While in the experimental room the subjects used, upon their persons for sleeping, the night shirts, pajamas, bedding, bedclothes, etc., above described, soiled with fecal dejections, black vomit, and blood. From time to time other packages, containing similarly soiled fomites, were introduced, and the subjects required to shake them frequently within the room. While in the observation room the men were not allowed to leave it except for necessary exercise, and then under guard.

While in the experimental room they were not allowed outside under any condition. Their food was carried to them, and there were guards over them night and day.

"A careful clinical record was kept of each man during the fourteen days he was kept in the observation and experimental room. The temperature, pulse, respiration, appetite, etc., of all eight continued practically normal throughout.

"At the beginning of these proceedings written invitations were sent to the physicians of Havana, requesting them to visit Las Animas at their pleasure to observe the progress of the experiments.

"I beg leave to call especial attention to the following facts in connection with those experiments, viz.:

"1. They were conducted in the city of Havana itself, within whose beautiful limits, until recently, Cuba's yellow sorrow had run riot continuously for one hundred and thirty-nine years.

"2. They were conducted in buildings, similar in construction and material (mamposteria) to those occupied by people of the poorer classes of the city—damp, poorly lighted, badly ventilated, floors on the level of the ground.

"3. They were conducted at the season of the year when, in this latitude, the dreaded scourge is at its worst, and does its most deadly work. Said period comprising the latter part of September, the whole of October, and the first part of November—the height of the yellow fever season in Havana.

"Military-Governor Wood, with his characteristically clear perception, appreciated, from its very beginning, the promise and importance of the mosquito-yellow-fever work in Havana. He generously provided the funds for the experiments and for the large expenditures, sometimes $35,000 a month, subsequently and consequently required by Major Gorgas, the Chief Sanitary officer, for the successful conduct of the anti-mosquito crusade. Major Reed, in the paper referred to above, expresses sincere thanks to 'Major-General Leonard Wood, U. S. V., without whose approval and assistance these observations could not have been carried out.'"

For one hundred and forty years prior to the late Spanish-American war Havana had never been free from yellow fever; the annual number of deaths from that disease having averaged from five hundred to one thousand, some years as many as sixteen hundred—largely among the Spanish soldiers, great numbers of whom were imported every

year up to 1898. During the first two years of American occupation the sanitary authorities devoted themselves energetically to putting the city in good hygienic condition, and especially to measures then considered most effective against yellow fever, such as the destruction and disinfection of fomites and localities supposedly infected by that disease. The result was a rapid decrease of all infectious diseases, except yellow fever, and an enormous diminution of the general mortality rate. Smallpox, which had been a terrible scourge under the Spanish administration, disappeared entirely in July, 1900, and has not returned since. Nevertheless, the amount of yellow fever in the city did not diminish along with other fevers, showing that ordinary sanitary measures had no effect upon it. There was more yellow fever in Havana during December, 1899, than in any December for several previous years. In 1900 there was a sharp epidemic, and in December of that year there were twenty deaths from yellow fever in the city. In January, 1901, there occurred twenty-four cases in Havana. In February, 1901, Major Gorgas, having fully accepted the demonstration of the propagation of yellow fever by mosquitos, turned all the energies of himself and his department to (1) The protection of yellow fever patients from mosquitos. (2) The prevention of the infection of mosquitos by yellow fever patients. (3) The destruction, by fumigation, etc., of all possibly-infected mosquitos, and (4) The abolition of all water barrels, pools, and other breeding places of mosquitos in Havana.

Practically no attention was paid to fomites, of which at the time there must have been a great abundance in the city. No attempt was made to get rid of fleas and bed-bugs, by which Havana is, at all times, infested. The result of this concentration upon the mosquito, and neglect of every other supposed cause of yellow fever, was a rapid subsidence of that disease until within less than eight months the last case had occurred in the city; after which yellow fever disappeared entirely. Not a case of it has occurred in Havana since September 27, 1901: although during the summer and autumn just ended patients sick with yellow fever, contracted in Mexico and Central America, were frequently carried through the heart of the city from the ships by which they had been imported, to the yellow fever hospital. During their transportation from ship to shore, and along the streets, they were kept carefully covered with mosquito netting, and upon arriving at the hospital were placed in wards made mosquito-proof by wire-gauze screens. In the same wards were treated, at the same time, non-immune patients sick with other diseases,

and they were attended by non-immune nurses. That yellow fever is contracted solely from the mosquito is now so firmly and universally believed in Havana that no one has the slightest fear of patients affected with that disease, provided the said patients be protected from mosquitos and the mosquitos from them.

It is contended by the opponents of the mosquito doctrine that the disappearance of yellow fever from Havana may not have been due to Major Gorgas' active antimosquito measures; because yellow fever had frequently disappeared, for considerable periods, from Santiago and other Cuban cities. But the conditions were quite different in Havana and the smaller cities. In the latter, the number of non-immunes was always very small, and the epidemic of yellow fever in one of these soon ceased, on account of the consumption of susceptible material; whereas, in Havana, the commercial, military, and yellow-fever center of the island, the number of non-immunes was always large, thousands of immigrants coming into it every year, constituting an uninterrupted and inexhaustible stream of fresh material for keeping up yellow fever in an epidemic form.

All of the many able, cultivated, trained American medical officers—among them such men as General Wood, Surgeon-General O'Reilly, Major Kean, Major Gorgas, Captain Stark, Surgeon Carter, and Surgeon Glennan, and others, who were in Havana, and who had personal knowledge of the mosquito-yellow-fever experiments and demonstrations made there, were, without exception, completely convinced that yellow fever is transmitted to man exclusively by the mosquito. This is exceedingly strong evidence, to my mind, of the correctness of the proposition stated in the title of this paper. Had our distinguished colleagues, who do not agree with us, been on the ground as we were, and seen with their own eyes, as we saw, the exactness and completeness of the proofs, I believe they would have been convinced, as we were.

The idea, held by some able and prominent medical men, that yellow fever may be transmitted by bed-bugs, fleas, and other suctorial insects, is, in the light of our present knowledge of insects and disease, highly improbable. Bed-bugs and fleas are found all over the world, in all climates, and at all seasons of the year; whereas, yellow fever is restricted to certain tropical and sub-tropical regions, and prevails only in the summer and autumn.

Another highly significant fact, in this connection, is that while yellow fever was melting away like ice under a summer sun before Major

Gorgas' antimosquito operations, the city of Havana was infested with bed-bugs, fleas, etc., galore; no attention being paid to them by the sanitary department, and that the same prevalence of these blood-suckers has continued throughout the subsequent fourteen months, during which the city has remained free from yellow fever.

The transmission of yellow fever by bed-bugs, fleas, or any other living entities, other than mosquitos, would be in violation of an established law governing the propagation of parasitic diseases, of which there are a great many. Each of said diseases, common to man and lower animals, is shared by man with only one other animal. In order to get from one human being to another, its parasite has to pass from man to the intervening animal and thence back to another human being —one variety of tape-worm from man to the pig, and from the pig back to man; another variety of tape-worm from man to the ox, and from the ox back to man; the germ of malarial fever from man to the anopheles mosquito, and from this insect back to man. Very many other similar instances might be cited. Each parasite has its own limited cycle, out of which it can not live. As Ronald Ross states: "All these are not theories or fancies, but hard facts, won by science at the cost of immense labors carried out by many scientific men during many years."

Although the germ of yellow fever has not been found (no more has that of smallpox), yet, the scientific and circumstantial evidence is practically positive that it is an animal parasite, whose cycle requires a certain length of time, and is very similar to that of the malarial parasite. We know that the yellow-fever germ goes from man to the stegomyia mosquito and from the stegomyia back to man. No instance has ever been advanced in which there seemed to me even a possibility that yellow fever had been transmitted by bed-bugs, fleas, or flies. Certain it is that no such case has occurred in Havana during the past fourteen months, in which yellow fever has been absent from that city, although, as shown above, unequaled opportunities for such an occurrence have there been constantly in existence.

Carter, in a very able contribution (Yellow Fever Institute Bulletin, No. 11), sums up as follows:

"For the belief that yellow fever is conveyed in nature *only* by a host, and doubtless a mosquito host, we have (1) The analogy of other diseases conveyed by insect hosts. (2) That all facts observed about the propagation of yellow fever agree with the necessary deductions of

this theory. (3) No other theory explains all the facts observed of its propagation."

The fact that so many, perhaps all, of the peculiarities and problems of yellow fever, impossible to understand formerly, are explainable and capable of solution by what we know of mosquitos and their relation to disease, is highly interesting and important. A few of these are:

Its singularly restricted area; its dislike for altitude, upper stories, plateaux, mountains, etc.; its partiality for the sea-cost and low-lying districts; its incommunicability from man to man; the meaning of "place infection"; the interval, two to three weeks, between first (infecting) case and subsequent group of cases (Carter); its frequent appearance at sea several weeks after vessels had left port; its arrest by frost and cold weather; its survival through winters; its absence from Asia and India, etc.

Of the problems elucidated by the discovery of the mosquito origin of yellow fever, I cite the knottiest of them all, the second outbreak on board the U. S. S. *Plymouth*, in 1879 (utterly inexplicable to me under the fomites, or any other, theory). The *Plymouth* sailed from New England early in October, 1878; arrived at St. Thomas, W. I. (a yellow-fever stronghold), on October 21, where she went alongside the wharf and coaled ship, remaining until October 25. The officers and stewards were allowed to go on shore during this time. On the 25th she went to Frederickstadt, Santa Cruz. November 4, while at Frederickstadt, a case of yellow fever appeared on board. Between the 4th and 7th seven cases occurred on board. On the 7th the *Plymouth* started north; after which date no fresh cases occurred in the ship. On December 1 she reached Portsmouth, N. H., where the weather is usually cold at that season of the year. From Portsmouth she went to the near-by city of Boston, where she was emptied of her crew and stores, opened up and frozen out during January and a part of February, 1879. The vessel had been several times fumigated with burning sulphur. February 12, 1879, she was recommissioned, and, on March 15, started back to the West Indies. March 19, "the damp berth-deck became very warm; a tropical condition prevailed." March 21, immediately after reaching the tropics, and before she had touched at any port, yellow fever broke out among her crew.

The solution afforded by the mosquito doctrine is simple and satisfactory: The *Plymouth* left the West Indies on November 7, 1898, with fresh yellow fever cases, and, doubtless, with numerous contaminated

mosquitos, on board. As soon as she entered winter weather, about December 1, the infected mosquitos went into hibernation and remained torpid until they re-entered the tropics, when some of them became active and stung certain of the men, thereby giving two of them yellow fever.

That mosquitos hibernate is a well-known fact. Theobald, in his standard monograph, states that mosquitos hibernate in the extreme cold of the Arctic regions ; that the gravid females seek shelter as soon as the weather becomes cold, lie dormant all winter, and deposit their eggs in the early spring. Howard, the highest American authority upon the subject, says in his capital work ("Mosquitos," page 6) : "Mosquitos hibernate in the adult condition." In conversation with this distinguished entomologist in Washington the other day (November 22, 1902), Howard used these words, which I took down verbatim : "The stegomyia hibernates in the adult stage. I have a strong suspicion that it hibernates in the egg stage also."

Too much admiration can not be accorded to Major Gorgas for the superb manner in which he accomplished the deliverance of Havana from yellow fever. In planning and conducting this creative work, without any precedent to guide him, he showed not only consummate administrative and executive ability and foresight, but also genius of a high order. After it was finished it was impossible for us to look back upon it and point out any particular in which the work could have been improved.

At the recent meeting of the Conference of State and Provincial Boards of Health of North America, at New Haven, Conn., it was resolved concerning Major Gorgas' sanitary redemption of Havana, that, "we regard (it) as one of the most brilliant achievements of the application of sanitary science to public health work ever accomplished."

LARYNGECTOMY FOR CARCINOMA.*

E. FLETCHER INGALS, M. D., CHICAGO.

The text for this article was furnished by a patient who was brought to our clinic for diseases of the chest, throat, and nose at Rush Medical College by Dr. Geo. A. Torrison, who had found him among his patients about six months previously. Dr. O. T. Freer had also seen the patient with him and a microscopic examination of a small mass removed for the purpose had confirmed their diagnosis of carcinoma of the larynx, which diagnosis was also concurred in by Prof. L. Hektoen.

The Patient and his History. The patient, L. T., was a large, fine-appearing man, 47 years of age, who came to this country from Norway thirty years ago. He weighed about 200 pounds and had every appearance of robust health excepting the one symptom of hoarseness. He was a jeweler by trade, married, and had three healthy children. He stated that he had malaria for three months seventeen years ago, had an attack of typhoid fever and also a slight attack of pneumonia some years ago, and in November of last year a rheumatic affection of the left thigh for a few days, which was followed by another slight pneumonia. Excepting these he had never been sick. He denied specific taint and there was nothing to cause us to question this statement. His mother died of old age at 83, father living at 83 in good health, two brothers and one sister living and well, aged respectively 56, 51, and 49.

The patient was a user of tobacco and alcoholic stimulants in moderate quantities, but had never been given to excess of any kind. There was nothing in his personal history to indicate the cause of the disease and there was no hereditary history of syphilis, malignant disease, or tuberculosis. The hoarseness began eighteen months previously; it had gradually increased for twelve months, or until he came under the care of Dr. Torrison, six months before I saw him. At first, although the true nature of the growth was suspected, the diagnosis was in doubt, and the doctor wisely put him on iodide of potassium, under the influence of which the voice gradually improved for two months. When first seen by Dr. Torrison there were two smooth

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white nodules involving the middle third of the left vocal cord, attended also by some swelling or thickening of the ventricular band immediately above it. In November, 1901, the growth showed considerable increase in size and had already spread to the anterior end of the right cord, but there was no glandular enlargement.

The Preliminary Tracheotomy. On his first presentation at our clinic in the latter part of January, I found a growth of comparatively small size involving all of the left cord, giving it an irregular edge with a rough, slightly ulcerated surface, and increasing its size irregularly about four times. The false cord was also thickened and the right side was involved to about one third this extent. There was no glandular involvement. I told the class that while I believed that, as a rule, patients with malignant growths in the larynx would live longer and suffer less from a simple tracheotomy than from laryngectomy, yet in this case the conditions were so favorable that I advised the latter operation. The patient was admitted to the Presbyterian Hospital February 4, and the next day at the college clinic I did a preliminary tracheotomy under cocaine anesthesia. The patient made an uneventful recovery from this operation, and at my clinic on February 26 was again operated on by the late Prof. Christian Fenger, who did a laryngectomy, which proved to be the doctor's last operation, as he died of pneumonia about a week later.

Professor Fenger's Clinical Remarks. I am greatly indebted to Dr. Karl Doepfner, Professor Fenger's assistant and associate instructor in surgery, for the report of Professor Fenger's remarks on this occasion, and to Dr. Otto T. Freer, instructor in diseases of the chest, throat, and nose, for the clinical report of the operation.

Because of the comparatively small growth, absence of enlarged glands and its intrinsic character, I hoped that J. Solis-Cohen's operation might be performed, but after opening the larynx Professor Fenger found that the growth had perforated its walls; therefore, complete laryngectomy was the only operation to be considered. Before coming to the operation Professor Fenger spoke as follows of the history of this procedure, its results and the various indications for removal of this organ, illustrating his remarks with numerous free-hand chalk illustrations on the blackboard, which, unfortunately, I am unable to reproduce. Professor Fenger said:

The History of the Operation. Regarding the history of this operation, in 1829 Albers of Bonn did experimental laryngectomy on dogs for

physiologic purposes, but surgery was not yet advanced enough to make practical use of his investigations. In 1854 Bernhard von Langenbeck of Berlin intended to do it, but the patient refused the operation. In 1856 Koeberle also pointed out its feasibility. In 1866 Watson of Edinburgh performed the first total extirpation for syphilitic stenosis. In 1870 Czerny made successful experiments on dogs for the purpose of surgical intervention in man, whereon in 1873 Billroth for the first time totally removed a carcinomatous larynx. Up to the end of 1897 we find in the literature 267 cases of total laryngectomy. Since then many more cases have been published.

Points of Origin of Carcinomata.

It is important to distinguish between intrinsic and extrinsic carcinomata of the larynx.

Intrinsic carcinomata may originate from the true cords, the false cords, the interarytenoid folds, the ventricles of Morgagni or the subglottic space.

Extrinsic carcinomata spring from the epiglottis, posterior wall of larynx—pharyngeal surface (out of 18 cases this point of origin has been found 13 times), the ary-epiglottic folds and the sinus pyriformes.

J. Sendziak, to whom we owe the most recent and best statistical work, gives the following data: Out of 273 cases where the point of origin could be located beyond any doubt, the carcinomata were intrinsic in 204 cases or in 74 per cent, and among these cases the true cords were 107 times the primary seat of the affection. This means that the carcinomatous new growth in the larynx attacks by preference the parts covered with squamous epithelium. Consequently, the squamous-celled carcinoma is the predominant variety in the larynx, while the cylindrical-celled and the glandular (adeno-) carcinomata are less common. It means also that wherever the intrinsic carcinoma starts it follows in its propagation the squamous-celled surface. In other words, it spreads from one side to the other, most frequently along one cord to the commissure and then to the other cord (circular carcinoma).

Early regional infection of the neighboring lymph glands is not always manifest. It is more common in the later stages of the disease, and yet more frequent in the extrinsic carcinoma. This peculiarity is said to be due to the scarcity of lymph vessels in the walls of the

laryngeal cavity proper. Metastases in remote organs have been observed in but a few cases. We may, of course, occasionally see a secondary carcinoma in a larynx, which had its primary seat in some neighboring organ, base of tongue, pharynx, thyroid gland, trachea, esophagus.

Etiology.

The etiology is unknown. Carcinoma of the larynx is much more frequent beyond the age of 40 (84 per cent). Out of all cases published 39 per cent occurred between the fifth and sixth decade of life, which is the most dangerous period. It is six times more frequent in men than in women. The disease is fortunately rare. Gurly, in his tumor statistics, pointed out that out of all carcinomatous growths only 0.5 per cent are located in the larynx.

The Three Stages of the Disease.

Three stages of the disease are described:

Intrinsic Carcinoma.—1. In the stage of irritation there exists chronic hoarseness, which, according to Gerhardt, when occurring without cough in old people always suggests carcinoma of the larynx. Paresis or paralysis of one cord may also be present.

2. The ulcerative stage will be accompanied by fetor, cough, expectoration of muco-purulent, bloody, necrotic masses, and beginning dyspnea. We may or may not have pain either spontaneously, or on coughing or swallowing along the auricular branch of the pneumogastric nerve, radiating to the ear and occiput.

Extrinsic Carcinoma.—1. Here the first noticeable symptom will be dysphagia. This soon increases, and at the same time dyspnea may be noticed.

2. In the ulcerative stage, the symptoms are the same as in the intrinsic carcinoma.

3. The third or cachectic stage is common to both varieties—due to the lack of food (dysphagia), lack of oxygen (dyspnea), and sleeplessness caused by difficult respiration and pain. Death ensues in about three years after the onset of the disease, sometimes rather suddenly from suffocation or aspiration-pneumonia, sometimes slowly from cachexia and marasmus, due to the cancer and to the difficulty in taking food.

Diagnosis and Prognosis.

I need not speak to you of the diagnosis, which has already been considered by Professor Ingals, but you should remember that macroscopic inspection is of more value in diagnosis than all other methods of examination, but do not forget that the reflected image in the mirror seldom reveals the full extent of the disease.

Microscopic examination of an excised particle of the new growth certainly is one of our best methods to clear up the diagnosis, but it is not infallible. Where it fails, and there is still strong clinical suspicion of carcinoma, we are justified in proposing and performing a laryngotomy. The diagnosis, however, is perplexing only in the early stages of the disease. The prognosis is hopeless without surgical intervention.

Operative Treatment.

According to our present knowledge, carcinoma should be extirpated wherever an operation is practicable. Carcinoma of the larynx may be extirpated by different operative methods.

1. *Endolaryngeal Operations.*—While benign tumors can usually be removed by endolaryngeal methods, and while even small malignant growths have been successfully removed in this way and the patients permanently cured, yet we must not put too much faith in such methods in operating on malignant tumors. We must always bear in mind that carcinoma is an infiltrating growth, infecting neighboring tissues which to the naked eye seem yet to be normal, and that it often spreads in the submucosa, leaving the mucosa healthy for a time at least. No doubt a skillful specialist will have good results if he sees such cases sufficiently early, but unfortunately this very seldom happens. Out of 640 patients—I quote from Sendziak—only 36 were treated by endolaryngeal methods, with 25 per cent absolute cures (3 years of observation), 14 per cent relative cures (1 year of observation), 39 per cent recurrences; in 22 per cent the time of observation was too short or the diagnosis not absolutely established. All these cases came early under the treatment of skillful laryngologists and yet there were 39 per cent recurrences. The following operative procedures must usually be preceded by a preliminary tracheotomy.

2. *Laryngotomy.*—We understand by this operation an incision, median or transverse, into the larynx through the skin, with removal of

soft parts only, not including cartilage. There exist at least six modifications of this operation. What are the results? Statistical figures may be annoying in a clinical lecture, but they are instructive. Sendziak gives complete statistics up to 1894; to von Bruns we owe the figures from 1890-1898.

	1851-1894 (92 cases.) Per cent.		1890-1898 (60 cases.) Per cent.	
Cured more than three years,	8.7	21.7	18.0	36.0
Under observation from one to three years,	13.0		18.0	
Recurrence,	53.3		28.0	
Death from operation,	9.8		15.0	

That means bolder operating during the last decade, more cases, less recurrences, but also more deaths. All our big operations on the larynx must begin with a laryngotomy except where there is no doubt as to the bilaterality of the carcinoma. The larynx once split open and its interior laid bare for inspection and palpation—then only are we able to decide whether laryngotomy will do or whether we have to resort to partial or total laryngectomy. In the cases which may be treated by laryngotomy alone, the cartilages must be sound and no perforation must have taken place.

3. *Partial Laryngectomy.*—This, generally speaking, is a laryngotomy with more or less resection of soft parts and cartilage. It may be of half the larynx or more. There are different methods of doing this operation. The results are as follows:

	1876-1894 (110 cases.) Per cent.		1890-1898 (106 cases.) Per cent.	
Cured more than three years,	10.9	22.7	12.0	27.0
Under observation from one to three years,	11.8		15.0	
Recurrence,	30.0		31.0	
Death from operation,	26.3		17.0	

This means distinctly more cures and less death-cases within the last ten years, but the same number of relapses due to the conservatism of the surgeons, in cases that were already too far advanced for partial laryngectomy. Radicalism in doubtful cases is safest in all cancerous growths.

4. *Total Laryngectomy.*—This consists in removal of the whole organ, with or without the epiglottis, and perhaps some of the adjoining tracheal rings and part of pharynx and esophagus. We must

resort to it in all the cases of circular carcinomata and in most of the cases where the growth has become bilateral. Here are the results:

	1873-1894 (188 cases.) Per cent.		1890-1898 (81 cases.) Per cent.	
Cured more than three years,	5.8	12.7	8.6	26.0
Under observation from one to three years,	6.9		17.4	
Recurrence,	32.4		23.4	
Death from operation,	44.7		18.5	

During the last decade there are distinctly more cures, less relapses, and many less deaths. What has brought about this improvement? Most of the patients formerly died from aspiration-pneumonia or wound infection (primary and secondary) even long after the general establishment of antiseptic wound treatment. The aspiration-pneumonia was combated:

1. By operating with the hanging head (Rose's position).

2. By the various tampon-cannulas of Trendelenburg, Hahn, Koehler, and Gerster.

By suturing the stump of the trachea to the skin (Glueck and Zeller) instead of leaving it open in the wound.

4. By operating in the combined Trendelenburg and Rose's position and by keeping the patient in Trendelenburg's position for several days (W. W. Keen).

5. By loosening the trachea from the surrounding connective tissue, pulling it upward and suturing it to the epiglottis (if not removed), hyoid bone, lateral sides of pharynx (Foederl). This is an ideal operation where it can be done.

Phlegmonous inflammation of the wound has been most successfully prevented by closing the large pharyngeal opening (Bardenheuer). No longer saliva with its microbes could run down and infect the wound, and the external wound itself could be closed and very well drained in its dependent parts. By this method the patient can sometimes swallow immediately after the operation, although it may be more prudent to introduce a soft tube into the esophagus or resort to rectal feeding.

Deglutition and Speech After Operations.

The restoration of the power of deglutition is of even more importance to the patient than restoration of the voice. After closure of the pharyngeal wound, patients are soon able to swallow, and if the sutures hold, nothing can enter the trachea. Before this plan was adopted patients were able to swallow solid and semi-solid food, but

liquids would escape through the pharyngeal fistula into the trachea and cause cough, tracheitis or broncho-pneumonia.

After endolaryngeal operations, the voice will be more or less perfectly restored; after laryngotomy and partial laryngectomy, the voice will also usually return to such a degree that the patient can make himself understood. In Professor von Brun's celebrated case, the carcinoma affected one vocal cord. Ten years ago he removed it by performing a total laryngotomy—splitting open the larynx from the superior thyroid down to the trachea. A cord-like cicatrix formed at the place of the removed cord and the voice was restored so that the patient—a professor of clinical surgery—has ever since been able to deliver his clinical lectures.

After total laryngectomy the laryngeal voice is of course lost, but patients are able to whisper. Several different artificial larynges have been devised to overcome this difficulty, but most of the patients prefer whispering to carrying around such a rather cumbersome instrument. The whispering voice can be much improved by use, especially in the cases where the pharynx has been successfully closed. After the operative method where the trachea is stitched to the hyoid bone, and therefore opens into the mouth cavity, the patient not only has soon learned to swallow every kind of food, but has also developed quite a good so-called pharyngeal voice. By this method the patient also retains mouth and nasal respiration—a not unimportant physiologic function—while with other operations, tracheal respiration, with its inconveniences and dangers, is persistent.

The Patient and the Operation Proposed.

Our present patient has an intrinsic carcinoma, as suggested by chronic hoarseness for eighteen months without cough and no wasting of the body as would occur in phthisis. The laryngoscope and the histologic examination substantiate the diagnosis.

The carcinoma is bilateral, consequently partial extirpation is no longer admissible, unless it be by the Solis-Cohen operation. This method is better than a simple hemi-laryngectomy, as it takes away a part of the laryngeal skeleton of both sides. Professor Ingals hopes that this more conservative measure is yet practicable. A laryngotomy will allow us to carefully survey the larynx and determine the full extent of the disease.

A preliminary tracheotomy through the third, fourth, and fifth cartilages was done three weeks ago, and the temporary tracheo-bronchitis has subsided. In this case blood will be prevented from flowing into the trachea by the sponge cannula of Hahn, which I prefer to Trendelenburg's cannula. The rubber bag of the latter is liable to collapse, or to distend below the end of the tracheotomy tube so as to cause suffocation.

Operation.

After insertion of the Hahn cannula, through which chloroform was administered, Professor Fenger began his operation by making an I-shaped incision, the upper transverse cut following the hyoid bone, the lower one a line below the cricoid cartilage. The vertical incision was made in the median line. The two flaps thus outlined containing the skin, superficial fascia, and prelaryngeal muscles were held aside. A curved needle was next passed under the hyoid bone, which was then pulled forward by a strong silk ligature. This brought the laryngeal region into strong relief, the thyroid, cricoid cartilages and trachea lying bared to view. The larynx was next opened in the median line, the thryoid and cricoid cartilages being split vertically and the thyro-hyoid membrane severed from the hyoid bone. At the anterior inferior angle of the right quadrilateral plate the thyroid cartilage was found very thin, and when touched with a probe broke down before it, yellow carcinomatous material in a state of fatty degeneration oozing out. This condition and the fact that the growth was found to have involved the anterior half of the other cord made Professor Fenger decide that total laryngectomy was necessary. He called attention to the fact that the laryngoscopic appearances gave no proper idea of the great extent of the disease. Though no enlarged lymphatic glands could be detected, he thought that the best course would be to follow the laryngectomy in about six weeks by an operative search for lymphatic metastases in the carotid and submaxillary regions.

The patient was now lowered into an extreme Trendelenburg position, the body being inclined at an angle of 45 degrees so that in addition to the tampon cannula the position of the patient with the head downward made it impossible for blood to enter the trachea or for the saliva to flow into the wound. The patient's heart at this time began to beat very slowly, and it finally stopped for a few seconds, but he was

revived and the operation finished without further anesthesia. Contrary to the usual practice, Professor Fenger began the removal of the larynx by severing it from its attachments at its upper part, as this gave a better chance to treat the pharynx and esophagus conservatively because they could thus be brought into view and separated more carefully from the larynx. It also gave great freedom of motion to the larynx and made it possible to lift it from its bed and twist it so as to expose the lateral portions in order to reach the vessels at its side. These were the superior laryngeal, superior thyroid, and inferior laryngeal arteries. The vessels were divided between two artery forceps and each severed portion tied. Working downward in this manner on both sides, the larynx was carefully dissected from the pharynx and esophagus and then drawn forward and removed from its attachment to the trachea.

After the larynx had been removed it was found that the growth had extended close to the base of the epiglottis, which had been left with the intention of using it for closing the wound in the pharynx. Because of the nearness of the carcinoma it was thought safest to sacrifice the epiglottis. The opening into the pharynx and esophagus was now closed by sutures from above downward, thus completely restoring the pharyngeal tube. The severed end of the trachea was brought out of the wound and stitched to the skin where the lower transverse incision met the median incision. The skin flaps were turned in and sutured, care having been taken that every nook and corner of the wound was properly drained. Hahn's cannula was removed and the old cannula replaced. No blood had entered the trachea around the sponge. Catgut was used for the ligatures and pharyngeal sutures. The knots were tied inside the pharynx. Moist boric acid dressing was used.

The recovery was uneventful, except that on the fourth day the esophageal tube was retched up by the patient and on the same day a communication formed between the pharynx and the wound from sloughing away of the anterior wall of the pharynx. This untoward event afterward prevented the patient from swallowing liquid food, which would escape through the pharyngeal fistula. Whether this fistula will close spontaneously in a few months or be closed by a plastic operation remains to be determined.

Dr. Fenger concluded that it would be better not to use a permanent esophageal tube for feeding, but to nourish the patient by rectum for a few days and afterward to teach him to swallow liquids, for this purpose

using sterilized milk, or if this did not succeed an esophageal tube should be used for a time at each feeding.

Discussion.

Dr. T. R. Chambers, Jersey City, N. J.: I wish to speak of two points. The first is the assertion made that when you have cancer you must take it away. I think that is liable to be misunderstood. Personally, I think I would rather die, if I had cancer of the larynx, than to have to suffer with the growth only partially removed. Its return would mean a great deal more agony to me than the few months or possibly only a few hours of life after a major operation like laryngectomy. The doctor then says that a major operation on the larynx must always be preceded by tracheotomy. I do not know whether he considers an excision of the epiglottis near its base as a major operation, but last Friday I removed the epiglottis at its base for cancer of the epiglottis and the patient did very nicely, although no tracheotomy was done. I think I would remove cancer in its very incipiency, if possible.

Dr. O. T. Freer, Chicago: Dr. Fenger did not advocate tracheotomy as a preliminary to all total or partial laryngectomies, but advised it where there is uncertainty as to the extent of laryngeal carcinoma, that is, in those cases where partial laryngectomy or laryngotomy may perhaps suffice to eradicate the disease, and preliminary laryngotomy is therefore done to determine whether the larynx may be in part preserved or needs total removal.

Where total laryngectomy is contemplated from the start and dyspnea is not urgent, it is better to remove the unopened larynx without preliminary tracheotomy, as this creates a suppurating wound with surrounding inflammation, and a cleaner, neater dissection can be done without it. In addition, the presence of a tube in the trachea leads to coughing fits that add to hemorrhage and interrupt the operation. In total laryngectomies of this type it is better, therefore, not to open the trachea or larynx at all. In distinction to this, partial laryngectomy, even if merely contemplated as a possibility, necessitates laryngotomy and consequent bleeding into the lumen of larynx and trachea. This hemorrhage may be severe and hard to control, while that occurring in total laryngectomy is easily arrested and reached. It is, therefore, well to insert a sponge tampon cannula into the trachea in cases of contemplated partial laryngectomy, though it is not a necessity, as Rose's position will usually answer to keep

the trachea free from blood. The tampon cannula insures against aspiration of blood upward into the trachea and its clotting there, and makes the extreme Rose's position unnecessary, and this is an advantage, as the position with inverted head adds much to bleeding and is uncomfortable for the operator.

Cocaine is always to be first applied to the trachea through the tracheotomy wound to avoid the coughing due to the presence of the tampon cannula.

Dr. Norval H. Pierce, Chicago: I think it is important in all cases to do a preliminary tracheotomy before either a partial or complete removal of the larynx. Not only does this give us breathing space during the operation and prevent the entrance of blood into the larynx, but in the after-treatment the discharges are cut off from the trachea, and thus the most frequent cause of death, aspiration pneumonia, is largely avoided. I have seen Fenger perform the operation three times, and in all of those cases he made a preliminary tracheotomy.

I would like to put on record a case which illustrates very nicely the difficulty of diagnosis of carcinoma of the larynx in its early stages. A Canadian clergyman was stopping in the city, and a friend advised him to consult me regarding a hoarseness which had lasted some six months. He was obliged to give up his work because of this hoarseness, his physician advising rest as a cure. The laryngeal picture was as follows: On the right cord below its surface was a nodule, pinkish in color, but well defined, with no induration around its base and no redness of the cord, except possibly a slight pinkish color of the upper surface above the growth. It was the size of a small split French pea or even smaller. I removed this growth as well as I could through the natural way, and was surprised, on microscopic examination, to find evidences of sequestration of epithelial cells. This case, immediately after the operation, assumed a malignant character. The induration increased so that after five days the entire picture was changed, the hoarseness was greatly increased, and it came to the point where I advised him to have an external operation performed. Greatly shocked, and not at all friendly toward me, he returned to his home in Canada, where I have heard that he is steadily going down. Now, here is a case in its incipiency where I was misled in my diagnosis, thinking it to be a simple papilloma, and I am sure no one could have made the differentiation by the microscopic appearance at that time.

Dr. Peter J. Gibbons, Syracuse, N. Y.: I notice in the abstract that the patient was able to speak. I did some work registering on the phonograph the voice of Dr. Solis-Cohen's first case. I registered on the cylinder of the phonograph what he could say and how it sounded and repeated the examination every three or six months or a year. At the meeting in Philadelphia I reproduced them. I have used the phonograph to register other cases since then, and I have come to use it frequently. In a case in which a physician was sued for malpractice for the removal of a tonsil, I used the phonograph for the registering of the voice, which won the case for the doctor. By registering the voice of the patient on the phonograph, we encourage other patients, who can hear the records when an operation is contemplated. The patient will often consent to an operation when he would not, probably, if he did not hear the reproduction of the voice. It is a simple matter to register the voice in this way.

Dr. E. Fletcher Ingals, Chicago: In reference to whether carcinoma should be operated on or not, I simply gave the late Professor Fenger's views. I am, personally, heartily in sympathy with what the doctor said; I should not usually have laryngectomy done for carcinoma. In all my experience I have only seen a single case in which laryngectomy seemed to me justifiable, and that was the one here reported. In the presence of cancer I believe the majority of cases will live longer and more comfortably without larnygectomy than with it. Professor Fenger believed that tracheotomy was not desirable in some cases. In this case I had done tracheotomy myself beforehand, without consulting Dr. Fenger about it. The case referred to by Dr. Freer was operated on by what is sometimes called Keen's operation, without a previous tracheotomy. It is turning out very satisfactory, and if other cases do as well, preliminary tracheotomy would not often be necessary.

STATISTICS OF THE CENSUS OF 1900 FOR THE COMMONWEALTH OF KENTUCKY.

BY T. B. GREENLEY, M. D.

As I have written on the subject of the vital and mortuary statistics of Kentucky heretofore, and complained that we have no efficient State law by which correct statements could be obtained of the births and deaths of the population, it is hardly necessary that I should say much on the subject on the present occasion. Consequently, when we speak or write of the matter we are compelled to refer to and rely on the statistics of the United States, which are taken every decade.

Our population for 1900 is reported to be 2,147,174, and deaths, 27,091. This is a gain in population since the census year 1890 of 289,106; the population that year being 1,858,635, which is an annual increase of nearly 29,000, or 10 per cent. The population in 1850 was 851,470, and the deaths 15,016, which shows a much larger mortality in proportion to population than in 1900.

There were born during the census year 61,789 children and died during the same year 3,575. The birth-rate was 30.6 per 1,000 population, which was 1 per cent greater than in the census year 1890.

The death-rate of the whole population of the State is set down at 16.8 per 1,000 population. This is 1 per cent less than it was ten years before. The death-rate in the United States in 1900 was 17.3 per 1,000 population, and in the census year of 1890 it was 19.5, a gain of over 2 per 1,000 in favor of 1900.

The principal causes of death from general diseases were measles, scarlet fever, diphtheria and croup, whooping-cough, malarial fever, influenza, typhoid fever, diarrheal diseases, cerebro-spinal meningitis, smallpox, erysipelas, venereal diseases, alcoholism, old age, diabetes, scrofula, hydrocephalus, tuberculosis, cancer and tumors, diseases of the nervous system, apoplexy and paralysis, tetanus and trismus nascentium and convulsions, diseases of the circulatory system, heart disease, dropsy, angina pectoris, aneurism, diseases of the respiratory system, consumption, pneumonia, bronchitis, tracheitis and laryngitis, diseases of the digestive system, diseases of the stomach, obstruction of the bowels, diarrhea, dysentery, appendicitis, hernia, diseases of the liver, cirrhosis, peritonitis, diseases of the urinary system, Bright's disease, diseases of the kidneys, diseases of the bladder, diseases of the female

organs of generation, affections connected with pregnancy, etc., diseases of the bones and joints, accidents and injuries, homicide and suicide, old age.

Fatality from certain diseases has increased in the United States within the last decade of years. Proportion from pneumonia to other diseases from 9,091 in 1890 to 10,198 per 100,000 from all causes; heart diseases from 5,343 to 6,671; typhoid fever from 3,216 to 3,405; cancer from 2,208 to 2,887; old age from 1,972 to 2,812; apoplexy and paralysis from 3,752 to 4,886; peritonitis from 594 to 722; diabetes from 286 to 450; diseases of the stomach from 960 to 1,298, and premature birth from 908 to 1,417.

Then we have others less fatal within the same period, to wit, deaths from consumption in 1890 were 12,146 per 100,000 from all causes, and 10,688 in 1900; diarrheal diseases, 5,610 in 1890 and 4,514 in 1900; cholera infantum, 3,269 to 2,461; bronchitis, 2,546 to 1,946; debility and atrophy, 3,035 to 1,663; malarial fever, 2,210 to 1,431; diphtheria, 3,305 to 1,586; diseases of the brain, 1,464 to 1,104; rheumatism, 586 to 488; hydrocephalus, 516 to 414 in 1900.

The number of deaths in the United States during the census year 1900 from all causes was 1,036,803; whites, 890,265; colored, 146,598; males, white, 476,062; females, white, 414,203; males, colored, 74,430; females, colored, 72,168. The diseases causing the greatest mortality were consumption, pneumonia, cancer and tumors, and bowel affections. A great many deaths resulted from accidents and injuries. The greatest mortality occurred under fifteen years of age, being 378,124, and in persons of sixty-five years and over 210,733. Of these 6,952 males and 6,561 females were single, and 60,637 males and 25,754 females were married.

It is greatly to be regretted that we have no effective law in Kentucky by which we could every year learn the increase of population, with the birth- and death-rate as well as the character of diseases. To be sure, we have a so-called law that every doctor and midwife shall report annually the births and deaths occurring under their treatment. It was enacted in 1894 and required the annual reports to be deposited with the clerk of each county, and said clerks were to deliver them to the assessors of their respective counties. Now, as far as I have noticed the statutes, there is nothing said as to what the assessors are to do with said reports. It may be that I have overlooked the matter.

Of course, if the reports are not published annually the public is not benefited by all the work of the doctors, etc., making out such reports. We should have an effective law by which the reports would be published regularly every year.

Our State stands very well as regards health, as well as birth- and death-rate, according to the United States Census Report for 1900, there being a slight gain over the census report of 1890, as it respects birth-rate, and a less death-rate.

I believe Louisville is the only city in the State that makes an annual report of births and deaths, with the prevailing diseases, which is very ably done by the present health officer, Dr. Allen. According to his late report, Louisville's death-rate is lower than any of twenty-one of the largest cities in the United States, to wit: New York, Boston, Baltimore, New Orleans, Philadelphia, Cincinnati, San Francisco, St. Louis, Washington, Charleston, Memphis, Jersey City, Pittsburgh, Providence, Newark, Cleveland, Detroit, Kansas City, Patterson, Allegheny, Los Angeles, Natchez. The death-rate in Louisville for the census year 1900 was 16.32. The highest death-rate of the cities named is Charleston, 29.11, and Natchez, 39.7. There are only a few cities over 100,000 inhabitants with a death-rate less than Louisville. Our health officer deserves some credit for this good showing. Omaha stands 13 5, Minneapolis 10.8, and St. Paul 9.7, which is the lowest of any city, large or small, in the United States. Chicago is put down at 16.2, near that of Louisville. Indianapolis stands at 16.7.

Of all the States, perhaps Michigan has about the lowest death-rate, it being 13.9. If we were to judge the matter by the low death-rate of St. Paul and Minneapolis, the lowest would be credited to Minnesota. But the general census does not give the death-rate of the State, on account of its not being registered.

During the fiscal year 1902, there were 2,385 marriages in the city of Louisville, 3,697 births, and 3,609 deaths. Of these 906 were children under five years of age.

Dr. Whittenberg, Superintendent of St. John's Emptive Hospital, reports 179 cases of smallpox and 9 cases of varioloid for the year ending August 31, 1902, and astonishing to say, only one death is reported. This is quite different from the old-time mortality of this disease, when about 40 per cent died.

Meadow Lawn, Ky.

Reports of Societies.

LOUISVILLE CLINICAL SOCIETY.*

Regular Meeting, April 14, 1903. Dr. Carl Weidner, President, in the Chair.

Reports of Cases.

Dr. Ewing Marshall: While helping Dr. Bailey at the Kentucky Institute for the Blind, I came across an interesting case which I mentioned to him, and he had seen one other before. I was called there Saturday afternoon, and when I arrived I found a girl with a temperature of 105°, who had been complaining slightly for forty-eight hours. There was no evidence of influenza, which I expected to find. She located the pain in the abdomen, a diffused pain, not localized at all and not severe. After a careful examination I could find no evidence of inflammatory trouble at all in the abdomen. I put her on quinine and pushed it for four days, finally giving her thirty grains, without any effect at all. She was seventeen years of age. Her temperature would come down to 104½° every day, but it hung on for a little over a week. At the end of the fourth day I gave her salol, because she was having disagreeable movements of the bowels. At the end of forty-eight hours after the salol had been given, her temperature began to decline, and at the end of seventy-two hours it was normal. She had no more fever after that, which was about the tenth day. She never had any rose-colored spots or any symptom of typhoid fever. The temperature was peculiar in that it came up about the middle of the day, being at the highest from twelve to four o'clock. About three days after the temperature disappeared she passed a lumbricoid worm. I am not yet satisfied what was the matter. She had practically no headache. She complained only of some tenderness over the abdomen, especially high up. No history of constipation previously.

Dr. P. F. Barbour: I very often see cases with high temperature, bad tongues, bile, etc., and think they are starting off with typhoid fever, and after a few days of cleaning out the temperature drops back to normal and it is not typhoid fever at all. I have very frequently seen these high temperatures in children. I have one now with a typical red tongue and a temperature of 104° or 105°. Under calomel and other remedies it came down to normal. I have seen these high temperatures in the young from worms such as that mentioned, but I

*Stenographically reported for this journal by Edgar Allen Forbes.

have hardly ever seen worms produce so much disturbance in a patient of this age. I think it is probably a case of auto-intoxication, possibly infection from retained secretions. I do not believe the worm could have caused all the trouble.

Dr. G. B. Young: I agree with Dr. Barbour. I have seen only one or two cases of this kind. The fever just went away after the administration of calomel, salol, etc. The trouble seemed to be due entirely to absorption from the intestinal canal.

Dr. Ewing Marshall: I would like to mention one other point. I have seen it mentioned twice this winter that the bacteriologists on the other side of the water have been finding a new germ like that of typhoid fever, producing a fever lasting about ten days. I do not know whether this is a new form of para-typhoid or not.

Dr. Carl Weidner: I have looked over the reports, but they are to the effect that the complaint and fever are identical with typhoid fever, only of a milder type. I believe parasites in the bowel sometimes cause a great amount of trouble. Either one of the flat or round worms may give rise to a large amount of systemic disturbance, even at that age. They are more common in children and people of nervous temperament. It is possibly due to the conditions being favorable for decomposition. Dr. Marshall's case does not present any typical symptoms of typhoid except the temperature and the slight diarrhea. We should use every effort to arrive at a correct diagnosis in these cases and examine the urine and blood.

Dr. Ewing Marshall: Years ago I had a case at the Home for Friendless Women which puzzled the doctor who saw the case before I did. She had a high temperature and distressing abdominal symptoms, and just after I took charge of the Home she passed a lumbricoid. I have a very handsome specimen of eight or ten worms a foot long. She got well promptly.

The essay of the evening, "Report of Hysterectomy for Inversion; Prostatectomy for Hypertrophy; Appendicitis complicating Pregnancy," was read by Irvin Abell, M. D. [See page 297.]

Discussion. Dr. W. H. Wathen: The case of inversion is interesting because of its occurrence at this time of pregnancy in the manner in which it did, and because of the successful treatment by the method employed. It is very unusual to have an inversion even by improper manipulation in delivery of the placenta at the stage of pregnancy re-

ported in this case. It has been reported as of infrequent occurrence at term. I have seen quite a number of cases in my experience in consultation with other doctors or referred to me. In this case, had a doctor been present in attendance and detected the inversion, it might have been restored to its proper position under chloroform and manipulation. If it had been discovered at the end of twenty-four hours or even forty-eight, or any other time, she should likewise have been given chloroform and manipulation attempted if the uterus had not been septic and there had been no hemorrhage. But the contra-indications were sufficient to justify the delay, and the correct thing in this case was done. The case was operated upon as timely as possible.

Now, the question as to the best method of operation must be considered in connection with the conditions encountered at the time of the operation. If this uterus was in a septic condition, the best thing was to take it away. That this was true is shown by the fact that the temperature went to normal within thirty-six hours afterward. In the extirpation of a uterus of this kind, it is better to take out the entire cervix and leave nothing but the vaginal vault. But here the condition of the uterus doubtless made that more difficult and might have caused more danger of infection. Hence, the present method was the simplest and safest in this case. I congratulate Dr. Abell on his treatment of the case.

A few years ago, in a very chronic case, I succeeded in reinverting a uterus that had been inverted for several years. This was the result of a fibroid tumor attached to the fundus, it having pulled the fundus down, and lay in the vagina with the uterus entirely inverted. I put in a few sutures to control the hemorrhage, and by firm squeezing with one hand in the vagina and the other pressing from above, in fifteen minutes I returned it to its position. You can not in every case return the uterus to its proper position, but in the majority of cases it can be done by the combined method, pressing from above and from below. This case of Dr. Abell's being septic, that treatment was contraindicated. But if this had not been the case, the better treatment would have been to delay until she was able to allow of its return by manipulation. The abdomen might have been opened in the median line and dealt with from above. Then the young woman might have been able to bear children. But this case was an exception, and the treatment was not only justifiable but indicated.

As to the case of appendicitis. That may occur at any time in pregnancy, and it is the positive duty of the physician to remove the appendix, for the reason that there is danger at any time from pressure of the womb, and this may be the only way to save life. So this was the only thing indicated.

The other case, that of removal of the prostate, was a very successful one, and the doctor is to be congratulated on the excellence of his work.

Dr. P. F. Barbour: I have only to compliment the speaker upon his excellent report of rare cases.

Dr. Geo. W. Griffiths: It is a magnificent report of cases.

Dr. Carl Weidner: The operation for removal of the prostate especially is of great interest. I congratulate Dr. Abell on his success.

Dr. Gossett: I only wish to speak of the case of appendicitis. About fourteen months ago I delivered this woman. About a year before, she had had a case of appendicitis under another physician and the question of pregnancy came up. For some reason he told her that it would be impossible for her to have a child, and if so that it would kill her. While carrying this child she had two of these attacks, one at about four months and the other at six months. These were relieved by the usual medical treatment; I advised operation, but she would not listen to it. The third attack was after delivery, and still she would not listen to operation. About five months ago her sickness ceased and I suspected pregnancy, and found the uterus large and retroverted. I straightened it up and she went on, but did not menstruate again. I could never make a thorough examination because she had such contraction of the abdominal muscles. I was not able to map out the outline of the uterus.

She came to my office last Saturday and we thought we detected a tumor of the left side. She was then complaining of the appendicitis. After we got her to the hospital yesterday we were still unable to say whether she was pregnant or not, but thought probably she was. We were not able to map out the outline until she was under chloroform.

I was glad to see that Dr. Abell took time to carefully dissect out the appendix. Many surgeons seem to think that it is the rapidity that determines the recovery. I think it depends on the thoroughness of the operation. The woman was doing very nicely this morning. Now, it is a question whether she will miscarry or not, but I do not believe she will, as the uterus was not disturbed at all. He did lift up the right

tube and ovary to see if they were adherent, but decided they were normal. In this case, the woman has had two other children, with intense nausea and vomiting for months. This last time she has had no symptom of pregnancy at all except the cessation of the menses.

Dr. Irvin Abell: The difficulty in outlining this uterus was evidently on account of the intense suffering of the woman, which resulted in contraction of the abdominal muscles.

As to drainage and the effect of the removal of a part of the lining of the prostatic urethra, the portion removed was through the capsule of the gland, on either side. On removal of the left lobe a large portion was torn away, but that is of very little consequence, and will not diminish the caliber of the urethra. He will run far more risk of lessening the caliber by reason of the carbolic acid.

In a recent case reported by an English operator, he took out the entire gland, and if necessary he takes out the entire prostatic urethra with it. Where the enlargement is not by lobes, he simply clips off the urethra and takes out the prostatic urethra, and has had no interference at all. From our teaching it would seem that the contraction would obliterate the urethra, but he reports an uninterrupted line of successes. In this country we are divided between the perineal and suprapubic operations. I have never done the suprapubic except on the cadaver, and it seems to me more difficult. It seems to me objectionable on account of difficulty in controlling the hemorrhage, the danger of infection in this cavity under the vesical neck, and the difficulty in getting at it. Dr. Symes has a bag which he introduces into the bladder and blows up, and then pulls down the perineum with that, but I should consider this objectionable. With this method you get directly at the prostate, and can irrigate without any trouble at all. In the three cases in which I have practiced drainage I have used large catheters. In one case I kept it there for two weeks. I note that the tendency among some now is to use no drainage at all unless the bladder is septic. They use only a strip or two of gauze, on account of the hemorrhage. This is certainly an interesting line of work, on account of the large number recently reported.

Health Report. Dr. M. K. Allen: I will make my usual report for the two weeks ending with April 14. There have been three cases of scarlet fever, with no deaths; eighteen cases of diphtheria, two deaths; eight cases of typhoid fever; thirty-four cases of smallpox, four deaths.

In regard to the tuberculin test applied to cattle, which I mentioned at our last meeting, I may say that out of the herd of sixty-three, four were found to be tuberculous. Yesterday and to-day we have been applying the test to another herd, of forty-three. At a meeting of the Board of Commissioners of the Asylum last Saturday, I suggested that it would be a good thing to inject the herd there, and they will begin to-morrow morning. The Board thought this the proper thing to do.

Dr. G. B. Young: Speaking of smallpox, my messenger has been vaccinated a number of times, and was vaccinated last February; I suppose I have had forty or fifty successful vaccinations from the same virus. It took on him, and he had not been successfully vaccinated before since 1881. He put a shield on his arm when it got sore, but it slipped down and the wound became infected, but I decided it was a successful vaccination. A few days ago he developed a well-marked case of varioloid. He has quite an abundant eruption, eight to twelve pustules on his face and about forty on his body. An interesting feature of the case is that it started off exactly like influenza. He had backache, a little headache, temperature 103½°; a very severe chill was followed by a temperature of 104° at night, dropping back to 103° next morning; then it became normal in the afternoon, but he felt weak. He had some coryza, and I said it was influenza. The eruption appeared on the morning of the third day, it lacking eight or ten hours of being three days since the onset. The eruption first appeared on his wrist, and thirty-six hours later it appeared on his face. I told him to stay in his room, and the nurse saw him in the afternoon and reported it to me. I was very much surprised to find it. My little girl, four years of age, is a great pet of the messenger, and that afternoon he was sitting by a window and she saw him and went into the room. She sat on his knee by the open window, and he read and talked to her all the time. I do not expect any trouble to come from this.

This man we think a great deal of, and as the eruption was so slight we concluded to keep him in the isolation hospital on the place. I have an immune nurse, one of the patients I sent to the Eruptive Hospital last year. The messenger needs no special care, and is employing his time scrubbing the isolation ward.

Dr. J. A. Flexner: I would like to hear from Dr. Allen and others with regard to the use of shields in vaccination. The worst arms I have seen have been those protected by shields, and I have practically discontinued them myself. I think it is a bad idea to use them.

Dr. G. B. Young: We have had about two hundred vaccinations at the Marine Hospital, but have no history of a great many of them. Our rule is to vaccinate every patient on admission, regardless of his complaint. I do not think more than one or two had any infection. I got a lot of shields several years ago, and have them yet. My method is to take Johnson's zinc oxide plaster and build up a layer about a third of an inch thick, and then attach a strip above and below. That keeps the clothing from rubbing the wound. My scab stayed on three or four weeks, and I had no trouble at all. Two of my children were successfully vaccinated, and have had no trouble.

Dr. P. F. Barbour: I have come to the conclusion that those who use shields have more trouble than those who do not. When these celluloid shields first came out I thought them an ideal arrangement, but I soon found that the arm became so hot and there was so much sweating that the wound became infected and made the arms sorer than ever. I have been in the habit of using clean gauze, tied around and held in place by adhesive plaster. One objection might apply to the method used by Dr. Young: when the swelling takes place the adhesive strips might become too tight. Some complain of it drawing too much. That makes it very painful, and I know that the plasters made of felt cause a great deal of pain.

Dr. Ewing Marshall: I have had the same experience, and now I use the gauze very much as Dr. Barbour has described the method. I wait to let the virus dry and then put on a piece of gauze, and then the zinc oxide plaster.

Dr. Carl Weidner: I have seen a case of smallpox almost identical with that of Dr. Young. It is the case of a medical student whom I saw last Thursday, when I made a diagnosis of grippe. He complained of influenza more than of anything I could recall, and I was afraid of pneumonia. He had a very slight degree of soreness in the back. He came to my office Sunday with an eruption, and I tried to make it out a case of chicken-pox but could not. I sent him to Dr. Whittenberg this morning and saw him an hour afterward, and it was a typical case of varioloid. The thing that struck me was that he complained so little, and his temperature did not go above 102¼° and he was able to be around. The pustules were all umbilicated and small in size, not larger than an ordinary lentule.

With regard to the shields, I use the plan mentioned by Dr. Barbour.

Dr. M. K. Allen: I did not know before that they were discussing my report. So far as the shields are concerned, I think they are often a disadvantage where they are used like corn plasters and put on early; the arm swells and there is a good deal of tension. I made a practice of cutting these shields in two, so that there could not be any tension. But the gauze answers every purpose, as the only object is to prevent infection. Many people have unclean linen, and it is possibly best to dress the wounds.

In reference to Dr. Young's isolated case of smallpox, I would hesitate very much if I were in his position, for fear of infecting the institution. I believe he will have more than one case. It is impossible to isolate completely where you have to take food and water back and forth.

Dr. G. B. Young: My isolation ward is in the middle of the reservation. The patient takes a hot bath every day, and scrubs himself all over. I have begun on him an inunction of salicylic acid. In this way the desquamation is kept washed off. His food is brought to him, and nothing that he leaves is brought back. Nothing comes back but the dishes, and they only after being thoroughly washed, and it is difficult for me to believe that an infection can occur. Soap and water are good disinfectants. My clothing is not immune, but I do not come in contact with him. Of course, if the man were allowed to become encrusted all over and then shed off these scales, there would be more danger, but it is difficult for a man under these circumstances to spread the infection. When I came here I found a case of smallpox in the isolation ward, and it has happened once or twice that I know of.

Dr. M. K. Allen: It is possible that you may not have another case, but it will be an accident if you do not.

Dr. G. B. Young: Every patient entering the hospital is vaccinated, and no one is allowed to work on the place until his immunity is established. Visitors come only to the main building, and never to the isolation building.

THE AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

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FORTY-EIGHTH ANNUAL MEETING OF THE KENTUCKY STATE MEDICAL SOCIETY.

The Kentucky State Medical Society convened in this city on the 22d of April and continued in session three days. It was the first meeting under the new organization, and while the machinery was not as smooth as it might have been, it was finally put in first-class running order and everything worked like a clock, and to the general satisfaction of all concerned. Under the old organization the Society had about four hundred paying members, while under the new there are thirteen hundred, which goes to show the popularity of the new move. It is to be hoped that the good work will continue and that every good doctor in the State will soon be enrolled as a member of the State Society, which has always been one of the best working State societies in this country, and there is no reason now why it should not excel all former efforts. The incoming president, Dr. Steele Bailey, is an indefatigable worker, and doubtless will render much valuable aid in pushing the interests of the Society while he is president. The new secretary will find many little difficulties which the president will be able to assist him in overcoming, and as both are earnest workers it is certain that the Society will prosper under its present management.

Current Surgical and Medical Selections.

At a meeting of the International Executive Committee of the Pan-American Medical Congress, held April 1, 1903, it was decided to accept the proposal of the Argentine Republic to hold the Fourth Pan-American Medical Congress in Buenos Ayres in 1905 instead of 1903, as had been announced in their invitation of February, 1901. This was considered by the committee much more advantageous for the meeting, as it has long since been realized that it would have been impossible to have had a good representation of the delegates from this and other countries had the convention been held there in June of this year. The meeting of the American Medical Association in New Orleans and of the Congress of Physicians and Surgeons in Washington would have prevented a number of physicians of this country from attending, while the meeting of the International Medical Congress in Madrid would probably have attracted many from the Spanish-American countries who would otherwise have been disposed to have taken an active interest in it.

Notes upon Eleven Miscellaneous Articles on Animal Parasites.—(By Ch. Wardell Stiles, Ph. D., Washington, D. C.) 1. *Treatment for roundworms in sheep, goats, and cattle* (pp. 7–14), by Ch. Wardell Stiles. Experiments in Texas showed that a single dose (60 to 960 c.c., according to size and species of the animal) of a one-per-cent solution of coal-tar creosote usually kills the free strongyles in the stomach, but can not be relied upon for worms in the small intestine. For the worms below the fourth stomach, powdered thymol was used. For stomach worms, gasoline has been the popular treatment heretofore, but with the gasoline method four to nine doses are necessary. The new treatment, therefore, represents a large aggregate saving in material and more particularly in labor. A series of experiments in dosing ruminants in different positions (standing, on the back, on the side, etc.) shows that the posture has an important bearing on the success of the treatment, for if the animal is standing, the drench runs directly into the fourth stomach, but if on the side or back it runs into the first stomach.

2. *The disinfection of kennels, pens, and yards by fire* (pp. 15–17, fig. 1 and pls. 1–2), by C. W. Stiles. The author proposes throwing a spray of oil with a cyclone nozzle, and setting the spray on fire.

3. *Eimeria Stiedæ* (*Lindemann*, 1865), *correct name for the hepatic coccidia of rabbits* (p. 18), by C. W. Stiles. Historial note, changing the name of *Coccidium oviforme*, a protozoan parasite of man, rabbits, etc., according to the law of priority.

4. *Eimeriella, new genus of coccidia* (pp. 18–19), by C. W. Stiles. Type, *E. nova* (Schneider). The author overlooked the fact that Mesnil's

Legerella antedates *Eimeriella*, until too late to change the proof, but he calls attention to this point in the margin.

5. *Notes on parasites*—58 to 62 (pp. 19–24), by C. W. Stiles and Albert Hassall. Technical notes on nomenclature of certain parasites, none of which occur in man.

6. *Two trematodes* (*Monostomulum lentis and Agamodistomum ophthalmobium*) *parasitic in the human eye* (pp. 24–35, figs. 2–4), by C. W. Stiles.

8. *An Egyptian and Japanese strongyle* (*Strongylus subtilis*) *which may possibly occur in returning American troops* (pp. 41–42, figs. 14–21), by C. W. Stiles.

9. *An adult cestode* (*Diplogonoporus grandis*) *of man, which may possibly occur in returning American troops* (pp. 43–47, figs. 22–27), by C. W. Stiles and Louise Tayler.

10. *A larval cestode* (*Sparganum Mansoni*) *of man, which may possibly occur in returning American troops* (pp. 47–56, figs. 30–36), by C. W. Stiles and Louise Tayler.

These four articles give complete diagnoses, synonymy, bibliographies, and general reviews of the present zoölogic and medical knowledge of the five parasites mentioned, none of which have as yet been reported for this country, and as a result they are scarcely mentioned in American text-books. Persons who have followed the Bureau work on parasites will have noticed that in a number of cases the articles present complete summaries of the entire literature of the world bearing upon the species treated. If this policy is continued, the Bureau publications will naturally form the basis of all future work in this line for this country, since it will not be necessary for an author to consult any papers prior to the one in which the Bureau summarizes the subject. As it is practically impossible for physicians and zoölogists, except in a few cities, to obtain even a portion of the original European literature, this policy adopted by the Bureau will result in eventually furnishing to American workers in all parts of the country a complete digest of the subject of medical zoölogy.

7. *A case of vinegar eel* (*Anguillula aceti*) *infection in the human bladder* (pp. 35–40, figs. 6–13), by C. W. Stiles and W. Ashby Frankland. The authors found the vinegar eel in samples of urine taken by catheter from the bladder of a young married woman. As infection from the stomach to the bladder seems very improbable, the authors suggest the possibility of infection by means of vaginal douches, acidulated with vinegar, to prevent pregnancy. There is added a key to the clinical diagnosis of worms in the urine and in the vagina, arranged on the plan of a dichotomous botanical key, which will be useful to physicians engaged in clinical microscopic work.

11. *Spurious parasitism due to partially digested bananas* (pp. 56–57, figs. 37–38), by C. W. Stiles and Albert Hassall. On several occasions, partially digested bananas have been sent to the Bureau for determination, the physicians who had the cases mistaking these structures for tapeworms or other parasites.—*American Medicine.*

Inoperable Cancer.—The question of the treatment of inoperable carcinoma of the breast has been much debated during the past year. It formed the subject of an extensive discussion at the Manchester meeting of the British Medical Association, and very varied opinions were expressed. At the present time it may be said that there are two main methods: the first is oöphorectomy, with or without the administration of thyroid extract, and the second is electrical treatment. The results of oöphorectomy have varied greatly, and it is probable that many of the unsuccessful cases have not been published. Certain it is that in a few cases very brilliant results have followed oöphorectomy, especially when combined with thyroid feeding. Mr. Walter Edmunds has described a case in which he performed oöphorectomy and gave thyroid extract, and great improvement followed, and several other similar cases have been described. In a few instances improvement has resulted from thyroid feeding alone, as in cases recorded by Dr. F. Page and Dr. W. H. Bishop, and by Mr. A. Marmaduke Sheild. In cancer of the uterus also thyroid feeding has proved useful, according to Dr. R. Bell and Dr. H. A. Beaver. The value of some forms of electrical treatment is undoubted in certain cases of cancer. Many rodent ulcers and some epitheliomata have disappeared under the influence of the Roentgen rays, and for these forms of carcinoma they are a useful method of treatment, though where excision can be readily performed that should have the preference. For inoperable carcinomata of the spheroidal-celled variety the X-rays appear to be of some value; up to now about a dozen cases have been recorded, in which marked benefit has resulted, and in some instances complete recovery has ensued. The danger of an X-ray dermatitis has to be borne in mind, but this, unless extremely severe, is a small matter in comparison with the benefit which may result. In America Coley has described the action of the X-rays on sarcoma; in one case where numerous recurrences had taken place, the employment of the X-rays was followed by an apparently complete recovery. High frequency currents have also been employed, and in some cases with remarkable effect. Dr. James Allan has published four cases in which this method has been used. One was a sarcoma of the antrum of Highmore, two were carcinomata of the breast, and one was an epithelioma of the cervix uteri. In all great improvement occurred, and in three of the cases all signs of the malignant growth disappeared. It is too early in the history of these applications to express any decided opinion as to their utility, but the reported results are sufficiently good to justify their more extended employment.—*The Lancet.*

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"NEC TENUI PENNÂ."

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

MARASMUS.*

BY PHILIP F. BARBOUR, A. M., M. D.

Professor of Diseases of Children, etc., Hospital College of Medicine, Louisville, Ky.

Marasmus, or inanition, is much more common among the dispensary class than in private work. It occurs occasionally, however, among the children of the better class who have suffered from some prolonged and severe illness. We have all noticed cases where the extreme limit of the child's strength is reached in overcoming a broncho-pneumonia or a severe gastro-intestinal derangement. And although it lives through the illness there seems to be left too little strength, too little vitality, for it to pass into a convalescence and a return to health, so that it remains as it were *in statu quo*. We find that a history of this kind is often present in such cases, or it has been a case of bad feeding or congenital debility or improper hygiene, and in spite of our best endeavors the infant remains at a standstill for weeks or months. The term marasmus is usually limited to wasting for which there is no obvious cause, as, for instance, tuberculosis, syphilis, or acute or chronic diseases of the stomach or intestine.

The pathology is not uniform, nor does it always explain the cause of death. The liver is enlarged and fatty, but not more so than in other conditions. All the organs are pale, but there is a tendency toward hypostatic pneumonia. It is probable that the chief lesion will

*Read before the Louisville Clinical Society, April 28, 1903. For discussion see page 397.

be found to be in the mucous membrane of the gastro-intestinal tract, for the symptoms point to such a condition.

Rotch calls attention to "atrophy of the mucous membrane of the bowel." Holt describes the post-mortem findings in the gastro-intestinal tract as follows: "The stomach may be dilated; the mucous membrane is usually pale, often coated with tenacious mucus. The intestines contain undigested food, sometimes mucus. The true pathology of marasmus seems to me to be a failure of assimilation, owing to imperfect digestion, improper food, unhygienic surroundings or feeble constitution."

There is no difficulty in recognizing the marasmic or atrophied child, though the cause of marasmus is often very obscure. The child has simply wasted until all the fat has been consumed and the skin hangs in folds, especially upon the inner surface of the thighs. The surface of the body is cool and the temperature, as a rule, runs from one to two degrees below normal. The skin looks brown and muddy, and is dry and scurfy. The face is wrinkled and senile looking. Anemia is marked, as the hemoglobin per cent runs usually under fifty. The poor nutrition of the child makes it an easy prey to intercurrent affections. A simple bronchitis becomes a pneumonia, and any dyspeptic irritation of the bowels produces an exhausting diarrhea. In many of these cases we can not find anything wrong with the child except that it does not gain in weight. The appetite is good. The stools are apparently normal, and show that digestion is not seriously affected. I have seen many children gaining their half pound a week regularly that showed much greater evidences of indigestion and deranged intestines than some of these children exhibit. One fact that goes to show that the fault lies in the assimilation of the food is that frequently no abnormality can be discovered in the stools except that they are abnormally large. The nutritive properties are not exhausted during the passage of the food through the intestinal canal. Predigestion of the milk and the use of the most highly recommended predigested foods seem not to help the baby one whit; they pass in and out and do not seem to tarry long or do much good.

As Rotch says, "marasmus seems to be due to a vice of absorption." Acting upon this theory, I have been trying a new drug in the treatment of this affection. The results have been rather encouraging, so I have taken this opportunity of bringing it before you in order to have it tried more thoroughly. The remedy I have been using is copper

arsenite. It is hardly worth your while to go into a discussion of the therapeusis of arsenic, but a brief study of its action will explain some of the reasons for its administration. Arsenic in large doses is decidedly irritating, as has often been observed when applied to the skin. But when it is administered in small doses it exerts a stimulating action upon the cells of the mucous membrane with which it comes in contact. Ordinarily when Fowler's solution is employed we observe its beneficial influence in an awakening of the patient's appetite and in the increased secretion of the gastric tubules. If too large doses are administered, of course, the other untoward symptoms, which are familiar to us all, will develop. Potassium arsenite being freely soluble is soon carried to the liver, where its mildly stimulating action upon the hepatic cells favors the functions of the liver, as shown by the increased secretion of the bile, the greater amount of the urea formed, the better regulation of the glycogenic function, etc. The further effect of the arsenic upon the general system after leaving the liver is more marked upon the nervous mechanism, but its action upon the cells in the bone marrow in forming new red blood cells should be noted, for anemia is one of the important factors in marasmus. Undoubtedly, the improved nutrition of the nervous system is a desideratum, and the dryness and scurfiness of the skin are notedly helped by arsenic.

The disadvantage of the potassium and sodium salts of arsenic is their solubility, which favors their osmosis even in the stomach. Of course the antiseptic and stimulating action of arsenic is valuable there, especially as arsenic is one of the very few metallic substances which do not interfere with the peptonization of food.

The more insoluble salt of arsenic is preferable, however, in marasmus, for here we want the local stimulating action of the arsenic upon the cells in the mucous membranes of the stomach and intestines. The happy influence of minute doses of arsenite of copper in controlling nausea and vomiting is made much use of in controlling some of the vomiting attacks in infancy and childhood. It is more satisfactory than drop doses of wine of ipecac. For the pale mucous membrane and the tenacious mucus, the nausea, etc., of marasmic babies, it should be and is helpful. Its effects are, however, not confined to the gastric mucosa. Being much more insoluble than the alkaline salts, it passes into the bowel. That which is absorbed is carried to the liver, where it is eliminated again in the bile, so that the copper arsenite is being absorbed and being secreted again in the bile in a happy circle,

for its direct action upon the atrophied intestinal mucosa seems to stimulate it to renewed activity and renewed absorption and assimilation.

I have administered it three times a day, after feeding, in 1-300 grain doses, dissolved in water acidulated with hydrochloric acid. My experience with this treatment in some twelve cases has not been sufficiently large to warrant any extended deductions, still one straw or more will be some indication of the trend of the storm. Manifestly, when there is failure of any organ to do its work, we should attempt to supplement its function. And if the food is not undergoing digestion as it should, we should use what means we possess to aid nature. But the administration of hydrochloric acid and pepsin, which naturally occurs to us in the treatment of gastric disorders, does not give us the hoped-for results. However deficient the hydrochloric acid, and however strong the indication for its use, we find that very few of these children can take it without becoming nauseated. Nausea and loss of appetite are among the greatest evils we have to contend with in these cases. Where nausea is very severe lavage and gavage may have to be employed, and often they are of benefit. The removal of the tenacous mucus from the wall of the stomach would certainly favor digestion. Nux vomica or strychnine is the ideal tonic for such cases, but usually it is not administered in sufficiently large doses. The increase of the reflexes and the action of the bitter principle upon the mucous membrane are both desiderata. Rotch has brought out a very important point in the feeding of marasmic children by demonstrating the relative intolerance of the fats, and he modifies the milk so as to keep the fat content very low until the child shows by gain in weight that the fats can be handled. The proteids are somewhat diminished, while the sugar is kept practically at the normal per cent. Thus he advises a milk mixture containing fat, 0.5 per cent; sugar, 6 per cent; proteids, 1 per cent, and lime-water, 5 per cent.

The administration of cod-liver oil would seem from this to be contraindicated, and it has seemed to me that I secure more favorable results from the cod-liver oil used externally than when administered internally. Thorough inunctions with hot oils, alcohol, sea-salt baths, massage, etc., have seemed beneficial in some cases, and the mental effect upon the parent is not to be despised.

The prognosis in all such cases should be guarded, for the reserve of vitality is very small and may be exhausted very suddenly. The

sword of Damocles hangs over these children. The best indication of improvement is a gain in weight. Holt, however, calls attention to a misleading incident in a suddenly occurring edema, the increase in weight being due to the retention of the liquid in the body and not to improved nutrition. Chronic tuberculosis, which is an added reason for a guarded prognosis, can not always be differentiated from marasmus. It is this inability to determine whether such organic derangements are present or not that makes the outlook of such cases so bad. In congenital syphilis, for instance, there may be such atrophy of the gastric and intestinal tubules as necessarily would prevent growth beyond a certain point. Tuberculosis of the bowel or other organs may not be accompanied by any elevation of temperature, and so it is only on the post-mortem table that it will be diagnosed. These and other pathologic conditions of the mucosa of the intestinal tract are beyond our help. The fact that we can not diagnose them does not negative their existence. Therefore, we must not be too hopeful of good results in treatment. The improvement following the use of copper arsenite has, however, many times surprised me in the treatment of gastro-intestinal disorders, and it has come to my rescue in some cases of marasmus where I had despaired of affording any relief.

Louisville.

A STUDY OF FERTILIZATION WITH REFERENCE TO THE OCCURRENCE OF ECTOPIC PREGNANCY.*

BY JAMES OLIVER, M. D., F. R. S. Edin. F. L. S.

Physician to the Hospital for Women, London.

In the case of those animals which possess an ovary—with the exception probably of the ovo-viviparous osseous fishes in which we witness the occurrence of a form of ovarian gestation—the egg, when more or less mature and before being fertilized, leaves that structure in which it has been evolved. I use the words "more or less mature" advisedly, because it is not yet agreed what the signs of maturity are, nor what changes may take place in an ovum independently of the spermatic influence. Eggs, for example, in which the polar body can not yet be detected, as well as those in which this body is visible, are equally capable apparently of being fecundated. Again, it has frequently happened that eggs considered immature have been obtained from the ovary, and under advantageous circumstances these have not only been fertilized, but have been hatched in a satisfactory manner outside the maternal body.

In fishes, reptiles, birds, and other vertebrates generally, the ovum, in consequence of its own intrinsic changes and in virtue merely of its size, bursts its confining capsule and escapes from the Graafian vesicle. It is otherwise, however, in the case of mammals; in such, the ovum, on account of its small size, can not in this simple manner effect its escape, but requires extraneous help, and this is furnished by an exudation of serous or bloody fluid, which is poured out into the Graafian follicle.

Apart altogether from the influences of sexual congress, ova attain maturity, and in those animals even in which fecundation is accomplished in some portion of the female genital tract, eggs are from time to time extruded from the body without ever having encountered the sperm elements. Although, therefore, it is very evident that an ovum, when fully developed, may escape spontaneously from the ovary, it is nevertheless more than probable that ovi-posit may be and often is accelerated by coitus. During copulation there is in the human female an increased determination of blood to the whole genital tract, and in spite of the fact that the nervous mechanism of this heightened vascularity is different to that acting during menstruation, when ova are naturally shed, we may

* Reported in the Edinburgh Medical Journal.

with good reason assume that a rapid exudation of fluid into a Graafian vesicle does at this time commonly take place, and that dehiscence of an ovum which is approaching maturity may thereby be greatly hastened. As a concomitant of menstruation in the human female, of estrum in the mare, and of rut in some of the other animals, the ovary becomes more or less markedly turgid, and this periodic turgescence denotes the arrival at maturity of an ovum which may be spontaneously expelled. Under such circumstances, and if not otherwise gravely disturbed, this egg will probably leave the ovary as the discharges correlated with the aforesaid phenomena are declining. After careful observation, breeders of dogs have come to the conclusion that the seventh or eighth day of "heat" is the most reliable time to bring the bitch and the dog together, and as the bitch will a few days later often refuse the embrace of the dog, it is conjectured that this is an indication that the ovum has now ended its journey in the tube, and has reached the cavity of the uterus. We have as yet no positive proof in support of this tenet. Great diversity of opinion still prevails regarding the length of time the ovum takes to travel from the ovary to the uterus, in the case of any given animal. With the bitch, for example, some authorities affirm that this journey is invariably completed in from six to eight days, while others assert that it more usually occupies fourteen. In estimating this time, many disturbing elements have to be reckoned with, but we must remember that variation in the length of the tube may be an important factor. In different members of the same race or species the oviduct varies in length, and in the same animal even it rarely happens that the two are of equal length. In the human female the general opinion is, that the ovum traverses the Fallopian tube in about eight days.

When we come to consider the minute anatomy of the oviduct we find that anatomists are still at variance on this point. Some assert that it contains muscular tissue, while others repudiate the existence of true muscular fiber, and will admit merely the presence of fibro-cellular and fibro-plastic elements. Now, whatever the minute anatomy may be, the tube is undoubtedly an irritable and motile structure. It is, of course, well known that muscular tissue is not the only structure which, in response to stimuli, is capable of displaying the phenomena of irritability and motility. The amœba in its simplest form—as a piece of undifferentiated protoplasm—displays these phenomena perfectly. So, too, sensitive plants like the fly-trap and the mimosa, which possess no tissues presenting the characteristic appearances of muscle and nerve, are

capable of performing movements of an extensive and purposive nature in response to certain stimuli.

In the human female, and in the higher animals generally, there is maintained by peritoneal folds a structural continuity between the ovarian and the Fallopian tubes or oviducts, and through these folds stimuli radiating from the ripening ova are conducted to the tubes. As the ripening ovum approaches nearer and nearer to the surface of the ovary, it sets up disturbances which are not only communicated to but are appreciated by the tube, and this structure responds to these stimuli by applying its fimbriated or trumpet-shaped end to and grasping the ovary at the spot from whence dehiscence of an ovum is about to take place. At the same time, the activity of the cells at the peritoneal ostium is heightened, and there exudes in consequence a slightly viscid fluid which favors greatly the coaptation between the tube and the ovary. Under ordinary circumstances the ovum should travel to the uterus by that tube corresponding with the ovary from which it escapes, but very occasionally we find that it has made an irregular circuit, and has traveled by the tube of the opposite side. In my own work I have seen one instance of this. The patient was the subject of an unruptured gestation in the right tube, and at the operation I detected, in the left ovary, the corpus luteum dependent upon this conception. Internal migration, whereby the ovum travels along the free surface of the peritoneum, aided and guided by that mutual affinity which the germ and sperm elements have for each other, may account for this phenomenon, or in a few cases the ovary may be actually embraced by the tube of the opposite side.

The epithelial cells which line the Fallopian tube are ciliated, but they become less and less markedly so as they approach the fimbriated end, and where they join the peritoneum they present, in fact, the appearances of ordinary pavement epithelium. It is alleged by some that these ciliæ, by their movements, create a current which is directed from the ovary toward the uterus, and that, while they thus facilitate the descent of the ovum, they at the same time prove a hindrance to the spermatozoa, and effectually prevent these from ascending the tube. To this doctrine we shall refer later.

After falling into the peritoneal ostium the ovum is driven very gradually on by a peculiar screw-like motion of the tube itself. In this channel its progress is so slow that it hardly exceeds the rate of one inch per diem, but the delay in this locality is a wise provision of nature for increasing greatly the possibility of conception.

It is asserted by some that coalition of the germinal elements is normally accomplished always in the uterus, and one of the chief reasons adduced in support of this tenet is, that the ciliated cells which line the Fallopian tube are insurmountable obstacles to the spermatozoa, and that their presence confines the spermatozoa to that portion of the genital canal which is located below the level of the tube. Those who hold this view believe therefore that destruction of the ciliated cells, as happens in desquamative salpingitis—which I may here remark is a purely hypothetical disorder—is a powerful influence favoring the occurrence of extra-uterine pregnancy, since the removal of these natural barriers lays open the entire genital canal to the ingress of the spermatozoa, and enables them to travel to the ovary. After due investigation it is impossible to acquiesce with this doctrine. As a matter of fact, we fail in the majority of cases of ectopic gestation to detect any reliable evidence of such wholesale destruction of these ciliated cells. If, however, it be admitted that these cells are occasionally destroyed, it is more than probable that the ovum would traverse the tube more rapidly, and that thereby the chances of the germ and sperm elements greeting each other in the cavity of the uterus, where they are supposed to meet normally, would be correlatively increased. Again, in the barn-door hen, the oviduct is lined throughout with vibratile epithelium, but these cells do not prevent the spermatozoa from traversing this canal, nor from finding their way to the ovary. Certain materials are deposited around the egg of the bird in its passage along the oviduct, and it is evident that if the germ and sperm elements in this case do not actually meet on the surface of the ovary, coalition must be effected very soon after the ovum leaves the Graafian vesicle. It is noteworthy, too, that although there is not in the common hen any structure analogous with the spermatic sac, found in some female insects, and which in them permits of the fertilization by degrees of many eggs after one coitus, yet the hen after one covering by the male may furnish twelve or fifteen fecund eggs without any further embrace. It is difficult, indeed, to account for this anomalous phenomenon, but it may be attributed to the spermatozoa maintaining for several days an independent existence on the surface of the ovary and coalescing with the ova immediately these are liberated. Living spermatozoa have been found on the surface of the ovary by many observers. Bischoff and Barry have detected them in this locality, on several occasions, in bitches which were killed two and three days after covering, and the fertilized ovum has developed in

the oviduct when the uterine end of the latter structure has been ligatured in the case of guinea-pigs and other animals three days after copulation. With these and other facts before us, it is impossible to believe that vibratile or ciliated epithelium can be the serious obstacle to the onward progress of the spermatozoa that some authorities infer.

In the human female there is, during sexual congress, not only an increased determination of blood to the genitalia, but a state of tonus is at the same time induced in the whole genital canal. It is, in fact, through the agency of this tonus that the seminal fluid, after its deposition, is retained by the female, and as this tonus subsides, and the tissues revert gradually to their quiescent state, the spermatic fluid is drawn more and more in. If, however, this tonus fails to be evoked, then, independently of the condition of aspermism or any impairment of the vigor of the spermatic elements, the seminal fluid escapes from the vagina almost immediately it is deposited. Absence of this tonus is therefore a common cause of sterility.

When the spermatozoa reach the cavity of the uterus, they are not disposed to rest here quietly and await the arrival of an ovum, but are impelled to ascend the tube, being attracted thither by that affinity which the germ and sperm elements of all vegetable and animal bodies display toward each other, an affinity which, comparatively speaking, is capable of exerting its influence at a great distance, and the intensity of which increases as the distance between the two becomes more and more reduced. So great, indeed, is the affinity that, as soon as the sperm element approaches near enough to the ovum, which hitherto has behaved apparently in a passive manner, the superficial hyaline layer of the latter, at a spot nearest to the approaching spermatozoon, becomes elevated and forms a cone, and this, the so-called "cone of attraction," gradually increases in size and virtually stretches forth to meet its partner. When contact is thus established the cone ceases to elongate and begins to retract, and eventually it re-enters the vitellus, carrying with it the spermatozoon, which has now apparently become the passive body. The penetration, therefore, of the spermatozoon is effected, not by any movement on its part, but by the retraction of the germ sarcode. Under ordinary circumstances the ovum, after forming a union in this manner, is no longer liable to be influenced by the presence of other spermatozoa. It sometimes happens, however, that several spermatozoa enter a single ovum, but this is always looked upon as a pathological phenomenon, and the resulting embryonic

development is of an abnormal type. This elective affinity of the germinal elements for each other may at times be extremely feeble, or it may even be held in abeyance altogether, and yet these same germinal elements, when exposed to the influence of other ova and spermatozoa, may respectively attract and be vigorously attracted thereby. Separately considered, these germ and sperm elements may be fit and perfectly healthy, but, for some unknown reason, they display an absolute indifference toward each other. If the affinity is of a feeble character, then the sojourn of the ovum in the tube may be unduly prolonged, and this may prove to be one of the agencies which favor the occurrence of tubal gestation. On the other hand, if the germinal elements fail to attract each other, mutally, their coalition is impossible, and a state of sterility prevails, and we attribute this variety of sterility to sexual incompatibility.

In my opinion, fecundation, in the case of the human female, takes place usually, if not invariably, in the Fallopian tube, and complete arrest of the ovum in this structure is, no doubt, generally due to some disproportion between the size of the former and the caliber of the latter. At the outset the ovum in its simple form may be inordinately large, or it may become jammed, because fertilization occurred too near the ovary, and segmentation had consequently proceeded too far in the tube to allow of its safe passage. The ovum, it may here be remarked, has no power to alter its shape and size, and it is unable to engage and effect its passage through a channel which is smaller than itself. On the other hand, without impairing its vigor, a spermatozoon, when confronted by an opening smaller than itself, and which it is impelled to engage, is enabled to insinuate itself into such by attenuating its body, and in this state it will effectually traverse a canal which, in its unaltered condition, it could not possibly have entered.

After a careful scrutiny of facts, I am convinced that whatever delays the descent of the ovum to the uterus, either before or after fecundation, tends to facilitate the occurrence of ectopic gestation. For this reason impairment of the sensitivity, or a more or less marked paresis of the Fallopian tube, will prove to be a potent factor at work in the production of this order. Occasionally shock, fear, and mental anxiety, by their paralyzing action, may bring about this untoward result. In, however, the methods adopted for the prevention of conception, it is more than likely that we shall find a still more powerful influence acting in this direction, since some of these exert a very preju-

dicial effect upon the nervous organization of the women. These may also directly affect the well-being of such a highly sensitive structure as the tube, seeing that its physiological processes are in many cases interrupted thereby.

Chronic salpingitis, in the first instance, lessens the irritability of the tube, too, but it produces eventually sclerosal changes, and these may so narrow the lumen of the oviduct that at any time the ovum, in its transit to the uterus, may be arrested solely on account of the diminished capacity of the tube itself. If, under such circumstances, ectopic gestation is to occur, the tube must still be pervious, and sufficiently so to allow of the spermatozoa traversing it by altering, if necessary, even their shape.

LITHEMIA.*

BY CHARLES MOIR, A. B., M. D.

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From time immemorial the human family has been afflicted with numerous aches and pains located in different parts of the body, and it is to be presumed that we will continue to thus suffer until some great scientist shall discover a panacea for the cure of all ills to which this body of ours is heir. These aches and pains were and are to-day attributable to a great many causes. We learn from ancient history that a great many diseases of our ancient brethren were attributed to evil spirits, witchcraft, etc., and in every community at that time certain persons were recognized as being able to expel these evil spirits by their cunning and the use of magic, etc.; therefore they were looked upon, no doubt, as a kind of doctor. Neither do we have to go back to the so-called Dark Ages to find that superstition still exists, for right here in our own county we find almost the same state of affairs, for to-day we have all kinds of "pathies," some curing by signs, others by mental impressions, and others claiming that there is no such thing as disease, that it is all imaginary. Another came under my personal notice a short time ago in a patient of mine, a little child with complete paralysis. I had told the parents she was incurable. Yet a charlatan came along and told them that he could cure this

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child by rubbing over its frail body a glass tube, partly filled with bird-shot. He failed to cure, but received his fee daily.

The ancient superstitious doctors may have been honest in their beliefs, but our modern charlatan knows that he is wrong and uses his quackery for mercenary motives only, and still our lawmakers recognize some of these quacks by granting them license to ply their abominable calling.

You will pardon me, Mr. President and gentlemen, for prefacing this paper with the above remarks, but I do it, thinking possibly that the subject-matter of this paper could be better brought before you. At the last meeting of this Society you honored me by selecting me to read a paper at this meeting. The subject I selected is Lithemia, or an excessive retention of uric acid in the system.

I believe that a large majority of the aches and pains of our ancestors, as well as of the people of to-day, were and are caused by the faulty elimination of this salt. I do not believe, as some do, that its manifestations are due to an excessive formation, but to a lack of elimination.

All ages, sexes, races, and social conditions are victims of its ravages from birth (and possibly in intra-uterine life) to the end of life. This process of uric acid formation is usually going on, but just as long as an equilibrium between formation and elimination is maintained just that long are we free from its painful symptoms, but let the equilibrium be disturbed from any cause, then what happens? We have then retention and not excessive formation, because when we have symptoms of lithemia elimination is below par always.

Symptoms. I will not attempt to enumerate them, as they are well known to you, but if you will pardon me I will mention a few of them not usually set down in text-books as typical symptoms of a lithemic condition.

For several years I was connected with the department of eye, ear, throat, and nose in the Kentucky School of Medicine as clinical instructor in this department, and at the present time I am connected with the department of pediatrics in the same school, and I claim that in no departments of medicine are better opportunities presented to study this lithemic condition than in the above two.

From my experience, both in my private practice and college clinics, in patients presenting themselves with an acute tonsillitis I have seldom failed to elicit the fact that they also have painful joints or

muscles, and it is my belief that recurring attacks of acute tonsillitis is almost pathognomonic of an excessive uric acid salt. Of course the specific forms are not included, but the so-called catarrhal tonsillitis is what I refer to. The so-called growing pains of children are, no doubt, caused by the excessive retention of this same salt. Examine the throat of a child suffering with growing pains, and what do you find—either an acute or chronic hypertrophy of one or both tonsils. Examine the nose of adults or children suffering with this same disease, and what do you see—a hypertrophy of the turbinated bodies. I have seen a number of cases presenting themselves at the clinics with all of the above symptoms.

Again, we will find that the iris is involved. What organs are usually first affected? I claim the stomach. Why? Because it is the most abused organ in the body, chiefly by overfeeding and overdrinking. This abuse is constantly going on, both in infancy, childhood, and adult life. The first trouble, then, caused by retention of this salt is disturbed gastric digestion, manifested by a dyspepsia or indigestion. Technically, there is a difference between the two, dyspepsia meaning that the act of gastric digestion has been performed with great difficulty or imperfectly, while indigestion means the non-performance of that function, but usually the two terms are used synonymously, both signifying an impairment of the function of digestion.

It is not my purpose, however, in calling your attention to these gastric disturbances, to claim that all of them are due to an excessive retention of uric acid, as we all know that several pathological conditions can and do exist that would cause more marked digestive disturbances than this uric acid could possibly do. I speak of ulcers, malignant growths, etc., but I do believe that the great majority of gastric indigestions are due to an excessive accumulation of this salt in the blood. How is this brought about? Let any of us retire after overloading our stomach with indigestible food, and we wake up in the morning with gastric fullness, headache, sour taste, tongue coated, etc. Now, what caused all these symptoms? Primarily, overfeeding. We have to contend with a case of disturbed gastric digestion due to overfeeding, which is characteristic of a constitutional dyscrasia known as autotoxemia, in which the general circulation has become clogged with waste toxins, principally of the uric acid types.

Give the persons thus suffering a saline purge and in a few hours they are all right, but if you were to give this same patient artificial

digestive agents the symptoms would not so quickly disappear. By the use of a saline purge we get rid of these uric acid toxins and retained undigested food.

Why should these gastric disturbances be so prominent? A symptom of the abnormal presence of uric acid may possibly be better explained as follows: It is a well-known fact that when uric acid toxins are left to accumulate in the system certain morbid results will sooner or later invariably follow: urate salts are formed, and later on these salts are first deposited in the connective tissues of the body, because we all know that these tissues are physiologically less alkaline than other tissues. Therefore they have less resistance to the deposition of this salt than other tissues, but as the deposition of this salt goes on, slowly but surely the fibrous tissues of the muscular coats of the blood-vessels are involved, particularly the arteries and capillaries through the body, thus impairing their important physiological functions of contraction and expansion. In this way does the overfeeder and overdrinker expose himself not only to attacks of lithemia but to several other dangerous diseases, such as gout, apoplexy, etc.

When we realize that the entire functions of absorption and digestion, as well as excretion and nutrition, depend almost entirely on the proper uniformity of blood-supply to the parts, we know that when we disturb arterial tension and free capillary circulation we expose our bodies to a great many dangerous diseases, and the first of these is usually of the uric acid type; others usually follow. I, therefore, claim that the first symptom of an excessive accumulation of uric acid in the system is manifested by gastric disturbances through the medium of the blood-supply to this organ; other symptoms follow, such as painful joints, acute tonsillitis, acute hypertrophic rhinitis, iritis, and a host of other symptoms with which we are all familiar.

If this retention of uric acid is allowed to go on we will have organic changes, particularly in the cavities of the heart. The several endocardial murmurs are nearly all caused from the excessive retention of this salt.

Causes. As before stated, I believe that overfeeding is the chief factor. How many of us wait until the tissues call for nutrition, or call for food manifested by a degree of hunger? I will venture to say, very few. It has become a habit more than a necessity for us to eat a certain number of meals daily. Often we go to the table, not because we are hungry, but from habit. What have we done then?

Overloaded the stomach, no doubt, with a lot of nitrogenous food, and by this act of overfeeding combustion of these nitrogenous foods is incomplete, and we all know that the result of incomplete combustion of the nitrogenous foods is always uric acid. We can readily see my point substantiated—that overfeeding is the prime cause. We also know that when we eat a meal of chiefly nitrogenous food and do not overload the stomach, that meal is completely digested, and that the end product is urea. A normal effete constituent of the body and result of incomplete oxidation is always uric acid. Overfeeding then, first; drinking of sweet wines, malt liquors, etc., together with indolent and sedentary habits, all of which have a tendency to lower vitality by functional disturbances first, later on by organic changes. A great many other causes have been given us, such as sudden changes of temperature; all of which should not be overlooked, as all sudden changes interfere more or less with arterial and capillary circulation.

Symptoms. As before stated, you are all familiar with the many symptoms of lithemia, but do not overlook these facts. Examine the throats of these patients, and you will usually find either an acute or chronic hypertrophy of one or both tonsils; examine the nose, and you will usually find the same condition in the turbinated bodies; examine the eyes, and you will sometimes find an iritis. Do not forget the nervous system, for we usually have marked disturbances here too. Ask your patients if they have tinnitus aurium, vertigo, headache, neuralgic pains in different parts of the body, insomnia, and hysteria. Examine the urine, for here you will find your greatest aid in clearing up the diagnosis; it is always highly colored, a dark orange, decidedly acid in reaction, and in almost every case will deposit a sediment of uric acid crystals. In a certain proportion of cases, however, this uric acid is not deposited as uric acid crystals, but exists in combination with sodium and ammonium salts, forming acid urates. When it is separated from these ammonium and sodium bases it crystallizes usually in prismatic crystals, red in color, and it is this red sediment that is seen in the urine of these patients. Patients suffering from lithemia will tell us that micturition is painful, often burning in character, due to the urine being highly charged with uric acid, and this coming in contact with the delicate mucous membrane of the urinary tract produces irritation—often urethritis, cystitis, etc.

Treatment—Eliminative and Solvent. Keep the skin, kidneys, and bowels active. I do not believe that the diet cuts much of a figure in

these cases. I know a great many differ with me on this point, but still I believe, if there is no restriction as to the kind of diet, that results will be good if you restrict the amount and not the kind, so then I would suggest restriction of amount of food taken daily. Let that amount be regulated by demands upon the system manifested by hunger; in other words, do not let your patient eat from habit, but from necessity. If this is done, combustion of every particle of food will be complete, and consequently uric acid can not form.

Many mineral waters possess the power of dissolving and removing uric acid; even a good supply of plain water is an excellent agent. Look then to the liver, for its function is frequently disturbed; look to the stomach, as this is the starting-point of your trouble. Correct irregularities of diet and exercise, increase in every way the normal metabolism, neutralize as far as possible all retained uric acid, and you will find that you will succeed in curing a large percentage of your lithemic patients.

LOUISVILLE.

INTESTINAL INDIGESTION AND NEPHRITIS.*

BY H. H. ROBERTS, M. D.

With the possible exception of diarrheal troubles but little attention has been given to intestinal indigestion until the last few years. Intestinal indigestion has either been placed in the category of bilious attacks, torpid liver, or applied to stomach diseases. The so-called bilious attacts are nothing more or less than faulty intestinal digestion or some morbid condition therein.

In intestinal indigestion we may have faulty secretions of the intestinal juices, inflammatory and catarrhal conditions of the secreting glands or mucous membrane, or the faulty and imperfect reception of food into the intestinal canal, due to imperfect preparation in the stomach.

The improper secretion of bile is not the cause of intestinal indigestion as much as the imperfect condition of the intestines is a cause of the faulty secretion of bile. The pancreatic juices may be abnormal owing to disease of the pancreas or from a diseased condition of

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the intestines, but more frequently from a diseased condition of the liver. Therefore, a faulty condition of the intestines causes a detrimental effect on the intestinal juices proper, and those of the liver and pancreas as well. The effect of one breaks the harmony of the others. In the beginning, if we have a faulty process in the stomach, such as a lack of hydrochloric acid, which checks the conversion of the carbohydrates into maltose by the ptyaline and after reaching the intestines is acted upon by the diastase from the pancreatic secretion, which further converts into glucose, excessive fermentation may be brought about. Likewise, if the fats are not properly acted upon by the pancreatic juice and the bile the process of fat emulsification is imperfect, and we have an excessive putrefactive condition arising. The abnormal and imperfect digestive process in the stomach may bring about an acid fermentation in the intestinal canal, and as the fat can not undergo emulsification normally, only in an alkaline secretion, this acid condition in the intestinal canal renders the emulsification of fat impossible.

Nature has provided many protectives and effectual guards along the intestinal tract, but a departure from the normal of any one of them soon unbalances the whole economy and disastrous results follow. The carbohydrates and the organic acids check putrefaction. The biliary acids and their acid elements in their normal state check putrefactive processes in the intestines.

The digestive phenomena of the various properties of food can not be assimilated until absorption has taken place. We can, therefore, readily see why the interference to the conversion of the proteids into albumoses and peptones can give rise to decomposition of the proteids. As many of the food products, after their absorption, reach the lymphatics and thus enter the blood through the thoracic duct, assimilation is either retarded or suspended altogether, owing to the derangement of the process through a diseased condition of the epithelial cells. If absorption is prevented by improper preparation of food through an abnormal condition of the intestinal secretion, or other conditions, fermentation and putrefaction is rapidly intensified through the effect of micro-organisms, and by their development on an extensive scale in this abnormal media there are formed toxins, ptomaines, and other alkaloidal poisons, which need no emulsification or preparation for absorption.

The digestive process of the intestinal canal is one of the most important in the whole digestive phenomena, not only for the assimilation of food, but here is the gateway for the entrance of the various poisons,

both external and internal, that injure the body. The intestinal tract is an avenue with many turns, curves, depressions and reservoirs, in which poisonous substance may accumulate and through their action produce congestion, inflammation, and the breaking down of this, heretofore, effectual barrier to systemic affection. The intestinal canal normally contains various poisons—those which come from food, from the bile, putrefaction, etc.; therefore any cause which will increase their virulency produces intoxication from the absorption of this matter. Flesh foods are toxic particularly on account of their potassium. Bile is toxic on account of its coloring matter, bilirubin, and some of the other biliary salts. Putrefaction, which develops in the residue, engenders poisons. Fecal matter is toxic, this toxicity being due chiefly to potassium and ammonia and the union of organic principles in which are included alkaloidal substances. This is the condition present normally in the intestines. If fermentation becomes more active in the whole length of the digestive tract, there is produced a picture which is truly characteristic. The development of gas determines tympanitis, which may be either from the stomach or intestines. Fermentative gas may also make its presence known by eructations, pyrosis, flatulency, and burning sensations in the esophagus and pharynx. It may also produce vomiting which is highly acid, but is rarely hydrochloric—usually acetic. This fermentation may produce such an abnormal acid as to cause severe diarrhea from irritation of the mucous membrane. We can frequently see external signs of this acid fermentation from erythema which is visible on the buttocks in infants. The color of the stools becomes changed, bile with a green color is expelled, sulphuretted hydrogen is diminished, and if substances are administered such as the bismuth salts, there is not produced the characteristic black color, for there is no longer formed the sulphide of bismuth.

If fermentation of the proteid matter is present there is produced excessive sulphuretted hydrogen, sulphate of ammonia, etc., which is easily recognized by the odor of the gas expelled. Among other symptoms of a subjective character are depression, buzzing in the ears, deafness, fatigue, headache, vertigo, disturbance of sight, etc.

Vast numbers of microbes in the intestinal canal generate poisonous ptomaines and toxins; this superabundance of micro-organisms is superinduced by the retention of normal and abnormal material within the intestines, and the result of this stagnation is putrefaction and fermentation. I must admit that authorities are divided as to the effect of

the absorption of this deleterious material, and the excretion by the kidneys, with a detrimental effect upon these organs, nevertheless inasmuch as the various symptoms disappear when the poisonous substance is removed, we feel justified in using the expression, "Auto-intoxication" from the intestines. The term hypochondria, originally the name of that part of the body situated between the xiphoid cartilage and the umbilicus, no doubt has its significance, from the pathological condition of the abdominal cavity in this locality. Vertigo, while ever present in alcoholic, nicotine, and various alkaloidal poisonings, is a constant symptom of intestinal intoxication; in fact, all the symptoms present in neurasthenia are present in intestinal auto-intoxication, and I believe that the intestinal symptoms always precede those of the neurasthenia. The fermentation of the carbohydrates give rises to acetic, formic, butyric, lactic, and succinic acid; albuminous decomposition gives tyrosin, cystine, phenol, lucin, skatol, acetone, etc.

In the urine we find indican; if the peptones, the products of the digested proteids, are rapidly absorbed there is only a slight formation of indican, but if absorption is slight and putrefaction of the products of pancreatic digestion occur, much indican is formed and appears in the urine.

With the above production and retention, together with their compounds, we have symptoms presenting themselves of the diseased condition of the digestive tract, of the nervous system, the circulation, and especially the kidneys. As most of these cases are constipated and the excretions imperfect, the absorption of toxins which are present takes place rapidly, which may be and frequently is increased where there is a diarrheal or fluid condition of the intestinal contents. There is a form of cirrhosis of the liver believed by many authorities to be produced by a toxic condition of the digestive tract. The liver being the great storehouse for intestinal and other poisons, we feel inclined to call this hypertrophy cirrhosis a "dyspepsic liver," an alcoholic liver being an entirely different condition. We know that many forms of skin trouble are traceable to intestinal origin and are, therefore, auto-intoxications—urticaria may be mentioned as one of the common conditions from this source.

Asthmatic dyspepsia is due to "auto-intoxication," which is promptly relieved by cleaning the intestinal canal. If all these conditions can be and are produced by the absorption of toxins from the intestines, is it not reasonable to attribute kidney irritation to this same cause? It is

through secretion of the kidneys that the greater portion of this poisonous material is eliminated, and as drops of water will wear away a stone so the delicate membrane of the kidneys becomes injured. We know that the bacillus coli, typhoid bacillus, and other bacilli are found readily in the urine. We know that in obstruction of the bowels we have albumen in the urine, and when this obstruction is relieved this albumen clears up rapidly. This being a temporary or acute condition, but little damage is done to the construction of the kidney ; but if compelled to secrete daily toxic materials of the most poisonous character, injury is produced and inflammation brought about, together with disintegration of tissue, destruction of epithelium, passing of casts, blood, and all the other characteristic phenomena of nephritis.

When the kidneys begin to eliminate substances which normally they should retain, such as the albumen and peptones, we may feel reasonably assured there is the beginning of serious interruptions of the harmonious functions of these important organs.

Whenever the power of excretion of the kidneys becomes insufficient to eliminate the poison formed by the organism, then we have the beginning of intoxication, but even before this period appears we find that all-important symptom, albuminuria. This symptom is too often received by many practitioners as a positive diagnosis of nephritis. While it is one of the most important sign-posts down this avenue of sure destruction, it is not a positive indication that the disease is at hand, but one of those early warnings which, if understood and recognized by the physician, as it should be, would save many a valuable life.

We may make analysis of the urine morning and night and not find any albumen, but if an examination is made a number of times a day, especially two or three hours after partaking of a hearty meal, in these auto-intoxications from the intestines, albumen will seldom be found absent. Especially is this true when an abnormal quantity of indican is found in the urine, which is a most positive symptom of intestinal auto-intoxication. We should repeatedly examine the urine for albumen, not as a symptom of nephritis, but as one of the symptoms which is sure to lead to nephritis, and then we can combat and abort this disease in its very incipiency. This symptom, if neglected, is sure to lead to the formation of a true nephritis, with all of the horrible features which follow this disease.

We know positively now that albumen is not physiological, but not necessarily pathological, as far as the kidney is concerned, but only one

of those important symptoms of the beginning of diseases. I deire to emphasize the importance of making the most accurate and delicate tests for albumen. If we can find albumen by the more common tests, we can be reasonably assured that there is already destruction of the renal tissue, and that the disease is at hand.

It is often owing to the want of absolute capacity in making our examination for albumen that this important symptom is overlooked. When you consider the detection of one part of albumen in 300,000, you can readily see that it must be done with great care.

Even with the large experience I have had in these examinations, I find it often very difficult, until I have examined several specimens, to decide positively as to whether the urine contains albumen or not. There are many substances which are frequently mistaken for albumen. Possibly the most common are mucin and urates.

In this connection I might mention the importance, when receiving a specimen of urine from the female, of having a vaginal douche given before the voiding of urine; for in every woman suffering from leucorrhea or cervico-metritis, traces of albumen are sure to be found, but with the presence of albumen from the renal tract, indican, peptones, etc., with the symptoms already enumerated, there is hardly a possibility of making a mistake in the cause of the beginning of nephritis.

Now, how are we to combat this intestinal auto-intoxication? There is an old saying, "It is quite as important to know what kind of a patient the disease has, as it is to know what kind of a disease the patient has." Much of the toxemia can frequently be corrected if we are able to correct some vice or bodily habit of our patient.

Fermentative and putrefactive processes can be developed in suitable media outside of the body, and are swallowed with food and drink, but a healthy digestive secretion will so destroy or hold in check their active process that no harm is produced thereby; therefore, one of the most important requisites in a diseased condition of the intestinal canal, and a defective kidney, is that we have pure food and water given, and I believe that those of us who have made this a study are more and more convinced daily that we are dealing not only with a direct internal intoxication, but an external as well, and this through impairment of the normal digestive and assimilative processes of the body, which results in poisonous products being formed in the alimentary canal, or an excessive absorption of the toxic substances which are normally present in the digestive process.

Therefore, diet should be given careful attention in nephritis. It should be regulated solely for the purpose of diminishing intestinal fermentation and putrefaction. The oxidative power of the body being weak in these cases, the animal foods, though appetizing and attractive, must be kept within safe limits. Sugar and starch are frequently the foods at fault, but probably not so frequently and to the same degree as the animal foods. How are we to combat this toxic condition of the intestines, and by this means prevent the passing of this poisonous matter through the kidneys? I shall confine myself exclusively to the cause of nephritis, and not to the treatment of that condition when fully established.

If we prevent putrefaction by the use of calomel and other mercurials, we reduce the toxic matter excreted by the kidneys. There are many disinfectants and antiseptics that may be used in the intestinal canal, but the objection to many is that they are soluble, and therefore absorbent, and in the long journey from the mouth to the intestines much of the power of their antiseptic qualities is lost. As I have already stated, calomel is perhaps one of the most effective, being converted into bichloride in the stomach and black sulphide in the intestines, but the use of calomel, except temporarily, is impracticable. The salicylate of bismuth forms the sulphate of bismuth within the intestines, and gives off salicylic acid in the urine. While this drug is effective, it is not wise to use it for any length of time, though we get a twofold antiseptic effect. Charcoal, which retains the coloring substances and the alkaloids, may be used. Napthaline may be used; this removes the odor rapidly, and effectually removes the toxicity of the fecal matter and prevents fermentation. Under the thorough and effective use of intestinal antiseptics, toxic urine becomes free; the removal of the antiseptics causes the urine to again become toxic.

I therefore believe that the original cause of nephritis is the result of the absorption of toxic material and their compounds from the intestinal canal. The drug which will prevent intestinal putrefaction and the formation of toxic material—that will prevent its absorption or promote its elimination—will be the sheet-anchor in a host of diseases.

Lexington, Ky.

IMMIGRATION A FACTOR IN THE SPREAD OF TUBERCULOSIS IN NEW YORK CITY.*

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A little more than a year ago many criticisms and expressions of disapproval were aroused by the action of the government authorities at Ellis Island in debarring a consumptive immigrant from landing; and yet it should be apparent that when the State legislatures of both Colorado and California have seriously proposed to quarantine against tuberculous citizens from other States, the propriety of excluding aliens affected by pulmonary tuberculosis may at least be considered a suitable subject for unbiased discussion. The immigration law of 1891 excludes "persons suffering from a loathsome or a dangerous contagious disease." It would seem that tuberculosis, as presented in the ignorant and filthy immigrant from Southern or Eastern Europe, would come within the meaning of the Act. It is true that the conscientious, educated consumptive may reduce the danger of infection to others to a minimum by a nice regard for the well-established sanitary precautions necessary, but any one familiar with the character of recent immigration will be convinced that few of this class enter the country by way of Ellis Island. The distinction which the health department of New York City has sought to establish in classing tuberculosis as a communicable and not a contagious disease is rather academic than practical, when it is considered in connection with the illiterate and dirty immigrant. In the ignorant and vicious, tuberculosis of the lungs may be fairly considered a contagious disease, as a constantly accumulating mass of testimony proves, and it should be so treated. "Communicable" is a euphemism which may be permitted in order to spare the feelings of a sensitive patient, but "contagious" more nearly expresses the true nature of the disease as it occurs in the average immigrant of to-day. It is not the exclusion of one tuberculous immigrant, then, but the admission of many unrecognized cases in the cursory and ofttimes perfunctory examinations at Ellis Island, which is contrary to a sound and enlightened public policy. It is inconsistent that diseases such as favus and trachoma, which at their

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worst are not inimical to life, do not usually interfere with the patient's ability to support himself and family, are not more infectious than tuberculosis, and are certainly more amenable to treatment, should be deemed sufficient ground for exclusion, while the more dangerous consumptive, with his uncontrolled habit of expectoration, should be admitted through a singular exercise of sentiment in his favor. Infection in trachoma and favus is readily traced to immigrant sources; in tuberculosis the course of the disease is slow and insidious, and immediate sources of infection are less easily recognized. It is perhaps for this reason that the danger of the tuberculous immigrant to the health of the community has not been emphasized as it should be. Besides being a source of possible danger to all who come in intimate contact with him, he is almost sure to become a public charge himself, and in addition will often inflict posterity with a defective progeny, which, like the notorious Jukes family, will present in ever-increasing geometrical progression, problems in disease, pauperism, and heredity for future generations. To prevent the incursion of numerous cases of tuberculosis which now slip in unrecognized, the medical staff provided at Ellis Island is inadequate, and it should be increased to a sufficient extent to make possible the detection of all cases. For this purpose the naked chest of each immigrant should be examined by a competent physician, skilled in the early diagnosis of tuberculosis.

Congress is engaged in a revision of the immigration laws, and at the present session it appears likely that the entire question in its social and economic bearings will be carefully considered, with a growing tendency to a more exacting scrutiny of the applicant for admission to our borders. The discussion of the medical aspects of immigration may be properly taken up by the physician and hygienist. More rigid measures of restriction have been rendered necessary by the changing character of the immigrant himself. A generation ago the sturdy Irishman or stalwart German, who constituted the bulk of immigration at that time, did not tarry in populous Eastern cities, but sought in the undeveloped West an outlet for his energies, and on farm and cattle range, in mine and forest, with his brawn and intelligence, was a welcome producer of national wealth and a source of health and power to the country. He and his children soon assimilated American ideals and become as good and as useful citizens as the best native-born. He has been replaced to-day largely by the downtrodden Russian Hebrew

and the degenerate Sicilian. The centers of immigration have shifted from Northern and Western Europe to the countries populated by the Latin, Semitic, and Slavonic races of Southern and Eastern Europe, whence comes to-day more than seventy per cent of all immigration to this country. These peoples have not the clean bodies, pioneer spirit, or love for the institutions of their adopted country, of the Irishman or Anglo-Saxon. They make the un-American ghetto, the sweat-shop, and the overcrowded, unsanitary tenement of our large cities; and New York is the greatest sufferer, for here most of them remain. They show no disposition to seek the soil; they are for the most part non-producers and occupy a low position in the industrial scale as peddlers, second-hand clothing dealers, push-cart men, fruit vendors and petty shopkeepers, or as sweat-shop tailors and unskilled laborers. Their gregariousness causes them to herd together in thickly populated urban communities of their own nationality, thereby lowering the standard of living among the city poor, and making their own education in the elementary principles of hygiene slow and difficult. The tenement landlord derives an increased income by renting to the swarming Jew and Italian who crowd two or three families into rooms affording a decent accommodation for but one. It is becoming constantly more difficult for clean, self-respecting families to be comfortably housed, and there can be no doubt that the want of sunlight, fresh air and baths, and the miseries of overcrowding are among the chief agencies in the production of new cases of tuberculosis in this city. All efforts to divert this stream of immigration from cities, and to distribute it in country districts, have failed. Even the assisted agricultural colonies, in which ample means for the experiment have been provided by the generous philanthropy of the Baron de Hirsch fund, have met with little success.

It so happens that the Italians and Jews are at present the most numerous in the large class of unworthy immigrants, and many of the immigrants from Russia, Austria, and Southern Italy are physically and economically less desirable than the Chinese, who are now excluded. Restrictive legislation, however, should be framed on broader than invidious national lines, and it should be possible to devise a law so comprehensive as to exclude the dangerously diseased, the pauper, the criminal, the illiterate, the degenerate and undeveloped of any and all

nationalities, without singling out the Chinaman, the Slovak, the Italian, or the Jew.

Many observers have declared that a relative immunity from tuberculosis exists in the Hebrew race. The observation appears to have been well founded, but this immunity is fast disappearing in New York, for an ever-increasing proportion of cases in hospital and dispensary practice belongs to this nationality. In 1895 only two per cent of the applicants for relief to the United Hebrew charities were tuberculous; in 1899 the proportion had increased to 3 per cent;. and in 1902, according to the twenty-eighth annual report of this society, among 10,061 applicants for aid the proportion had risen to 4.8 per cent, and of all those seeking relief on account of illness more than 18.5 per cent were consumptives. In an article entitled Health and Sanitation of the Immigrant Jewish Population of New York, in The Menorah for July, 1902, Dr. Maurice Fischberg says: "Physically the Jews appear to be inferior to all other people in New York City. Their average stature is from five feet one inch to five feet three inches, which means that they are the most stunted of the Europeans, with the exception, perhaps, of the Hungarian Magyars . . . being about the same height as the average American youth between the ages of fifteen and sixteen. Another characteristic of the Jews is their narrow chest. We know that in the majority of healthy individuals the girth of the chest exceeds half of their stature. In the case of the Jews we find the majority show a chest girth less than half of their height. This, added to their illy developed muscular system, their emaciation and also the frequency of anemia amongst them gives them the appearance of a sickly people." It is difficult to interest them to any extent in athletic sports, or in occupations involving the exercise of strength or muscular activity. Writing of the great need of physical development among them, Dr. Fischberg continues: "If this is not attended to, there is great danger that in the near future the inimical sanitary surroundings, the poisonous air in the congested 'double-decker' tenements, will deteriorate the physical condition of the people to such an extent that all their peculiar resistance to the infectious diseases will disappear, and they will succumb to the ravages of disease, particularly consumption, in numbers hitherto unknown in the history of civilized mankind."

In a recent address, Mr. Jacob de Haas, secretary of the Federation of American Zionists, said that "in the last twenty years more than

$25,000,000 had been spent for charities among the Jews, but what had been the return? Practically nothing for the final betterment." Also he stated that "in Wilna thousands live in hovels two flights below the streets, while it is no uncommon thing for two families to occupy a single room nine feet square." That their condition in New York is but little, if any, better is apparent from the following description by Dr. Lee K. Frankel published in the annual report of the United Hebrew Charities for 1901: "The horrible congestion in which so many of our coreligionists live, the squalor and filth, the lack of air and sunlight, the absence frequently of even the most common decencies, are too well known to require repetition at this writing. Even more pronounced are the results accruing from these conditions, the vice and crime, the irreligiousness, lack of restraint, indifference to social conventions, indulgence of the most degraded and perverted appetites, which are lately growing more pronounced and offensive." In these presentments by experienced observers there is material for thought for those who are interested in the warfare against tuberculosis, as well as for the well-wisher of American institutions.

The immigrant from Southern Italy is usually superior physically to the Jew, but he, too, accustomed to life in a mild climate, and amid whatever other disadvantages enjoying at least an abundance of sunlight and air in the outdoor life of Southern Europe, will often speedily succumb to tuberculosis in our varying climate and in the unsanitary life of the New York tenement.

If the total expenditure now made necessary in this city by the worthless and dependent immigration flocking hither were available for the construction of sanatoria and improved tenements, it would go far toward a permanent solution of the problem of caring for the city's tuberculous poor. It may well be doubted if the care of wretched, alien degenerates who are the products of centuries of oppression and misrule abroad is any legitimate burden for the hospitals and charitable institutions of this city, especially as it has been conclusively shown that European governments and societies, in many instances, have directly encouraged and assisted emigration of this class, as a means of ridding themselves of the worst elements of their population. As bearing upon this point, Mr. Henry Rice, president of the United Hebrew Charities, in the twenty-seventh annual report of his society says: "Hitherto we have had to bear the burden which should prop-

erly have been borne by our British coreligionists. They (the London Board of Guardians) were perfectly willing to furnish free transportation to those persons who were unable to make a living in England, but who believed if they could only reach the shores of America (which means New York to all Jewish immigrants) their troubles would be at an end." The inspector sent by the Treasury Department to investigate and report on the conditions in Europe regarding immigration to this country reports that of 373 diseased persons rejected at Antwerp from January 1st to August 9th of last year, not more than forty, it is estimated, failed to get over to Canada, and thence reach their destination to this country. A line of steamers sailing from Hull to Quebec and Montreal has made a regular business of bringing in diseased immigrants rejected by direct lines coming to this country. As one passenger agent expressed it in speaking of this back-door Canadian route, "any one is accepted who is capable of walking off the ship." Mr. Robert Watchorn, special inspector of immigration, in the government annual report for 1902, thus writes of the class smuggled in from Canada: "I unhesitatingly assert that no human beings who ever came under my observation presented a more forlorn and hopelessly unimprovable appearance than those who have attempted to enter the United States via the Canadian border. The Canadian route to the United States is known to every unscrupulous agent in Europe, and is by that means made known to the very dregs of society, many of whom having been rejected at United States ports sought this easy mode of escaping the effect of official vigilance." The United Hebrew Charities have estimated that 75 per cent of all their dependents come to them by Canada. Israel Zangwill, with all the charm of his literary art, has in The Land of Promise woven a pretty story about a Jewish immigrant maiden whose dark eyes flashed behind trachomatous lids, and was for this reason refused admission at Ellis Island. The distinguished author relates with apparent approval the incident of her return and subsequent entrance by stealth through Canada. What can be expected from a class of future citizens whose first act in relation to the country is a violation of the law? As law breakers they will probably have but little respect for the sanitary or other statutes of their adopted country.

Of 497,791 steerage passengers inspected upon arrival at Ellis Island last year, there were certified on account of dangerous conta-

gious or loathsome diseases or other physical causes 2,833 persons. The increase of alien immigration over the previous year was not quite one third, yet the comparative increase of diseased immigrants for the same period was more than two to one. Of the entire number of diseased persons reported, only twenty-nine were certified for tubercle of the lungs, one for chronic phthisis, and eight for chronic pleurisy, according to the report of the Commissioner-General of Immigration to the Treasury Department for 1902. It can not be doubted that among this large total number of immigrants admitted, many cases of unrecognized tuberculosis were passed, as the staff of examiners is too small to permit any but the most hasty and superficial examination. If the proportion of tuberculous were the same for the entire number of immigrants coming to this country as for applicants for aid of the same class to the United Hebrew Charities, 4.8 per cent, it would make the total number of consumptives admitted 23,893 for the one year 1902. This figure, indeed, might with reason be considered too low an estimate, as the percentage of tuberculous among the Jews has been shown to be much below that of other nationalities. There is no available means, however, of estimating the proportion of consumptive immigrants among other races. Even the half or tenth part of this conjectural estimate would constitute an amazing figure, and should emphasize the importance of a careful physical examination for every immigrant.

Besides the peril to our own population of admitting large numbers of consumptives, the conditions aboard ship are most favorable for the contraction of the disease by the healthy steerage passenger in the poorly ventilated, overcrowded, cramped, and unsanitary quarters of the steerage. In justice to the healthy immigrant, steamship companies should not be permitted to embark tuberculous passengers, without at least making suitable provision for them in separate quarters under proper hygienic supervision.

Illiteracy in the immigrant of to-day renders futile in great measure the propaganda of education against tuberculosis in New York among the classes who need it most. It is idle to post municipal ordinances against spitting, the distribution of tracts and circulars inculcating the prevention and hygiene of tuberculosis can have little effect, and newspaper articles teaching the public the dangers of consumption and the importance of its early recognition are wasted on the numerous illit-

erate among our recent immigration population. The report for 1902 of the committee on tuberculosis of the United Hebrew Charities states that "The distribution of pamphlets was attended with but little success as the desire and ability to read and understand them were usually lacking. Practically all the good that was accomplished was through verbal guidance." Of the 648,743 total immigrants to this country in 1902, 574,680 were over fourteen years of age. Of this number, 162,188 could neither read nor write, and 2,917 could read but could not write, representing more than 28.7 per cent. of illiteracy. This figure, however, does not accurately include the entire proportion, for many of the children between ten and fourteen who are illiterate will remain so after their arrival in this country, as they are put to work in many cases by their parents instead of being permitted to go to school. Of those nationalities sending considerable numbers of immigrants, the worst showings for illiteracy are made by the Syrians, Ruthenians, Slovaks, Poles, Southern Italians, Hebrews, Greeks, Croatians, and Slovenians, and these races contribute the greater part of all immigration at the present time.

Certain occupations are recognized as favoring the development of tuberculosis on account of their indoor and sedentary character, or exposure to irritant dust and vapors. The immigrant Jew, by force of circumstances or choice, is found mostly in these unhealthy occupations. Of 57,688 Hebrew immigrants for 1902, no fewer than 6,110, or considerably more than 10 per cent, were tailors. If from the total number 25,952 women and children are deducted, the proportion of adult male Hebrews who were tailors would rise to nearly 19 per cent. Five hundred and forty-nine were clerks and accountants, 2,246 were put down as merchant dealers and grocers, 2,018 were carpenters and joiners, 232 were workers in tobacco, 592 were bakers, 1,285 were shoemakers, 808 were painters and glaziers; only 58 were farmers, 317 farm laborers, and 17 gardeners. The Southern Italians, who share with the Jews the distinction of being least desirable as immigrants of those nationalities which are coming in large numbers, are more fortunate in their occupations as regards liability to tuberculosis. A large proportion of their number are farmers, out-door laborers, gardeners, and sailors.

As regards geographical distribution of this ever-swelling tide of worthless immigration, New York City naturally fares the worst of any

spot in the country. Of 57,688 immigrant Jews in 1902, 39,520 declared New York State to be their destination, and for nearly all of them that meant New York City. Of the 152,915 Southern Italians, 79,545 gave New York State at their place of future residence, and of these the greater portion, doubtless, remained in this city. Nearly a third of the total number of immigrants on arriving gave New York State as their final destination. The advocates of practically unrestricted immigration sometimes urge the requirements of the unskilled labor market as a reason for the admission of all comers. The supply of laborers would not be affected by a health-test excluding the tuberculous, for these unfortunates can never be of much value in any productive capacity.

It must be admitted that at present the privilege of admission to this country is held too cheaply and is granted too unreservedly, to the detriment of our social well-being and bodily health. If notification to the health department is necessary in cases of tuberculosis, if disinfection after death of the premises occupied by the consumptive is a justifiable requirement, if the position of the French government is sound in its recent measure prohibiting tuberculous schoolmasters from teaching in the French schools, then tuberculosis is certainly a disease which may properly be quarantined against, and the tuberculous alien immigrant should in every case be refused admission to the country. Let the consumptive, who is ever among us, be treated with gentle sympathy and intelligent care—his lot is indeed hard enough—but there should be no false sentimentality in the matter of excluding additional sources of infection. That the enforcement of a sanitary or other law entails hardship in individual cases is no reason for its not being executed, if in the first instance the law is a wise one and works for the good of the greatest number. All sanitary legislation is more or less a question of expediency. Recent hygienic reforms have already accomplished much in lessening the prevalence and mortality of tuberculosis, and it is the belief of the writer that no more promising step in further diminishing its ravages can be taken to-day than by instituting a careful inspection, and the rigid exclusion, of the thousands of tuberculous immigrants, who, it is believed, are now coming to this city each year. In adopting such a measure, there need be no fear of reprisals in the form of retaliatory legislation by European governments, for fortunately this country has no indigenous elements of its

population at all comparable to the diseased paupers which Europe is sending so freely to us. If we had, and the tide of such immigration were reversed, all experience indicates that European nations would know how to protect themselves, and would promptly take the necessary steps to do so.

New York City.

X-RAY AS A THERAPEUTIC AGENT.*

BY WILLIAM L. HEEVE, M. D.

Great as has been the progress made with the X-ray in radiography, greater has been its application in the treatment of pathological conditions. When I read of the wonderful properties of this form of electrical energy in the treatment of lupus, cancers, and diseases of the skin, I became somewhat skeptical and rested my opinion on further information. The reports of Morton, Beck, Allan, and others stimulated my wish to experiment with this new form of energy.

My first experimentations were performed with a home-made Ruhmkorff coil, six-inch spark, generated by a 52-volt alternating current, using a Wehnelt interrupter. At present I use a ten-plate, 30-inch static machine, and prefer this machine to my old coil, which I greatly prized in my early experiments.

The choice of an X-ray apparatus is certainly perplexing to one unfamiliar with the methods and results of operation of the different styles of apparatus. It is the question of "the man behind the gun." If a physician is thoroughly conversant with an induction coil and its mode of breaks, etc., then the coil will answer all purposes, but physicians, as a rule, wish to use a static machine for therapeutic purposes. In this case, with an additional expenditure of a few hundred dollars, a most excellent form of excitor can be purchased, and at the same time an additional machine for the treatment of diseases susceptible to static influence. The coil requires careful adjustment of the breaks, as the sticking of the interrupter is liable to destroy both tube and coil. If the alternating current must be used, we must place a Wehnelt interrupter in the circuit. Its adjustment is complicated in the hands of

*Reported in the Therapeutic Gazette.

an amateur, while the only trouble generally complained of with a static is its bad behavior in a damp atmosphere; but it is like a mule, it must be coaxed and not abused. In the improved static machines these obstacles are obviated. If the owner of a static will keep his office windows closed during the damp nights of the summer, and try to keep the machine charged over-night, also using fused chloride of calcium in the case, he will have little trouble. I find that a static machine will hold its charge longer if we insulate the floor supports or legs by glass insulators. The form or make of a tube is another question which solely depends upon the machine acting as the excitor. The writer would advise the purchaser of a static or coil to guide his selection of a tube by the recommendations of the maker of his machine.

In my private practice I generally use a high-vacuum tube of about the equal of a seven-inch air-gap. A tube of this air-gap equal need not be too strongly actuated. If a high-vacuum tube becomes too "high," it can easily be brought "down" by carefully heating the tube over a Bunsen flame, or by baking it in an oven. A low-vacuum tube actuated too strongly is liable to produce a severe dermatitis. How the rays accomplish their wonderful curative effects when applied to malignant neoplasms the writer can not explain, as it is too early to give facts regarding its mode of action. As a curative agent in the treatment of lupus and malignant neoplasms that can be exposed to its rays, it has come to stay, and some of our most eminent specialists have performed cures with this form of electrical energy.

The reports published in our trustworthy medical journals by such masters as Morton and Beck, giving their experience with the treatment in inoperable carcinomas and sarcomas, are worthy of due consideration by the profession.

The writer's experience in the treatment of malignant growths was fully reported in a paper before the Society for Progressive Medicine at its March meeting. The following cases are of great interest, as they prove the broad field of usefulness of the X-ray:

Case 1. John B., aged twelve years, bottle-fed when baby; family history negative; has had pneumonia and measles. General health was good until one year ago. His present trouble has been diagnosed at the Post-Graduate and St. Mark's Hospitals as tubercular arthritis of left knee-joint. Upon examination with the fluoroscope I found enlarged condoyles having uneven edges. I thoroughly agree with the above diagnosis.

On February 26, 1902, the knee was exposed to a high-vacuum tube of ten minutes' duration; on March 5th, 10th, and 15th, to exposures of fifteen minutes' duration. The pains occurring during sleep entirely disappeared but motion seemed more limited, due to slight contracture of the hamstring muscles. On March 17th and 23d, exposures to high-vacuum tube of twenty minutes. A slight dermatitis appeared on March 19th, therefore treatment was postponed until March 23d. Free motion of the joint was now possible; no pain was present, and the swelling was slightly reduced. Upon examination with the fluoroscope the edges of the condyles presented an even surface, with a few small nodules. He walks with some hesitation, but no stiffness or pain. No further exposures were made, and upon examination April 12, 1902, I found slight enlargement of the joint remaining, but free motion of joint, and to all appearances a complete cure.

Case 2. Miss C., aged fifty-seven, has had varicose ulcers of the left leg for fifteen years. The central ulcer measures three and one half inches in diameter, surrounded by an indurated border, and presenting a grayish, leathery base. I advised skin-grafting, which was refused, but she willingly submitted to exposure to the X-ray. She had had treatment from some of our ablest clinicians with apparently no success.

February 2, 1902: After cleansing with H_2O_2 the part was exposed to the X-ray, using a high-vacuum tube; duration ten minutes. On February 7th and 9th there were exposures of ten minutes' duration. On February 14th there was an exposure of fifteen minutes and healthy granulations were noticed, appearing over the base. No pain and no itching were present, and the surrounding eczematous area was disappearing. On February 17th, 19th, and 23d there were exposures of twenty minutes, and it was found that the ulceration was reduced about one third, and the base gradually crowding up with new tissue. On February 25th and 27th, and March 2d and 5th, there were exposures of twenty-five minutes. It was noted that the diameter of the central ulcer now measured half an inch. The three small ulcers had entirely disappeared. She had resumed her social position, and had walked two miles each day with no pain or discomfort. On March 7th, 9th, 12th, and 16th exposures of twenty minutes were made. Her last exposure was given March 16th, and complete healing had taken place. Upon examination April 2d the scar tissue was soft, the veins in the vicinity gave no trouble, and apparently a cure had been obtained.

Case 3. Mrs. B., aged forty-seven, family history tubercular. About three years ago a small pustule formed upon the middle third of the right leg, which she scratched during sleep; an abscess developed, which was poulticed several days, opening in many places, leaving an ulceration which became chronic owing to neglect. After six months' treatment (nine months after abscess opened) the ulcer healed. Seven months later the ulcer reappeared, with involvement of the periosteum of the tibia. All local treatment failed to cure. Operative treatment was refused.

On December 6, 1901, two and one half years after abscess opened, she presented herself for treatment, still refusing operative treatment. The ulcer measured six and one half inches by three inches. On January 29, 1902, she received the first exposure of the X-ray with a high-vacuum tube, of ten minutes' duration. On February 5th, 9th, and 14th exposures of twenty minutes' duration were made. On February 16th, 19th, and 23d exposures of twenty-five minutes' duration were made. The ulcer had ceased to cause pain and the base was filling with healthy granulations. The patient refused to allow a photograph to be taken, to my disappointment. February 25th and 27th, and March 1st, 3d, and 5th exposures of twenty minutes' duration took place, the ulcer now measuring two and a half inches by one inch. On March 10th and 15th, and on March 19th, exposures of ten minutes were made. Upon examination April 15, 1902, the ulcer had healed nicely, the scar tissue was soft, and only a slight depression remained. She is enjoying the best of health and experiences no inconvenience when walking great distances.

Case 4. George B. T., aged twenty-four years; family history tubercular; bottle-fed when an infant; had cholera infantum, which left him a "scrofulous subject." Two years ago he developed a swelling on left side of the neck, which gradually increased, finally breaking at four openings, giving exit to a sanious material and leaving several ragged ulcers.

Upon his first visit to my office I advised operative procedure, extirpating the entire chain of glands, but this he positively refused. I tried ichthyol, silver, nitrate of mercury, and zinc chloride with no success. I diagnosed the case as tubercular ulceration (scrofuloderma). I asked the privilege to experiment with the X-ray, to which he willingly submitted. On January 3, 1902, he received his first exposure of ten minutes' duration with a medium vacuum tube. Upon exami-

nation of the lung with the fluoroscope the left apex gave a cloudy appearance, and upon auscultation I found small moist râles, most distinct at height of inspiration; percussion gave slight dullness and palpation increase of vocal fremitus. The sputum was negative. On January 7th, 12th, and 15th exposures were made with a high-vacuum tube, of fifteen minutes each. January 17th, treatment was postponed owing to the development of a slight dermatitis. Swelling was less, there was less discharge, and granulation was beginning at base and edges. On January 25th treatment was resumed, with an exposure of ten minutes. On January 27th, 29th, and 31st exposures of fifteen minutes were made, and on February 3d, 5th, 8th, and 10th exposures of twenty minutes. The two lower ulcers, which previously coalesced, now were entirely healed, leaving the upper or main ulcer in a rapidly healing state. On February 14th, 18th, and 23d exposures of ten minutes were made, and on February 29th, when the last exposure was made, the ulcer was about the size of a pin-head. On March 20th, upon examination, the part presented scar tissue, uneven, with several deep depressions. The swelling was entirely absent, there was slight contracture of the sterno-cleidomastoid muscle, and several enlarged glands about the size of almonds were present. A few moist râles on deep inspiration were heard at left apex. There was no dullness on percussion, but slightly increased broncho-vesicular breathing. On April 15th the general health was improved, there was increase in weight, and the lung symptoms were gradually disappearing.

During the course of treatment the dressing consisted of gauze moistened with one-per-cent solution of zinc sulphate, and no other external application. Internally nux vomica and iron, and an occasional laxative. In treating with the X-ray I always protect the normal tissue by a sheet of lead, with an aperture over the surface to be treated, also encasing my tube in a box lined with sheet lead having diaphragm openings of different sizes, thereby protecting the operator from a possible dermatitis. I do not believe there is any gain or safety in using a grounded screen of sheet metal of silver as advised by Tesla. The most astonishing feature about the X-ray is that it possesses powerful analgesic properties, immediately relieving pain in cancers and ulcerations, even if extensive ulcerations have taken place.

The distance between the tube and the patient should never be less than five inches nor more than twelve inches. The rule as laid down by the writer is as follows: Sarcomas, six inches; epitheliomas, seven

to nine inches; lupus, six to eight inches; ulcerations, tubercular, eight inches; varicose, eight to ten inches; skin diseases (eczema, etc.), eight to twelve inches.

With some patients, especially blondes, reaction occurs with depressing symptoms, as shock and fall of temperature. If such shock should occur, stimulants, as nitro-glycerine or nitrite of amyl, and a course of tonics are demanded, and further treatment should be postponed until the patient's general condition is attended to.

In closing I wish to emphasize the fact that in treating sarcomata and carcinomata we must use a high-vacuum tube, running the static with the greatest number of revolutions possible.

Brooklyn, New York.

THE GROWTH OF THE TUBERCLE BACILLUS AND ORGANISMS RESEMBLING IT ON FRUITS AND VEGETABLES.*

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At one time the tubercle bacillus was looked on as standing in a class by itself, sharply differentiated from all other micro-organisms, but not long after its recognition two important points came to light: first, that there are other organisms, especially the streptothricæ, that have the power of producing lesions resembling the tuberculous granulomata; and secondly, that there are other organisms resembling the tubercle bacillus in some of its biologic and staining characteristics.

The fact that the tubercle bacillus stains with difficulty and decolorizes with corresponding difficulty was for a long time regarded as peculiar to this organism. This staining peculiarity was looked on as a definite and final test, quite as specific as a chemical reaction. But now we know a whole group of acid-proof bacteria widely distributed in nature, that resemble the tubercle bacillus closely enough in certain features to cause confusion and errors in diagnosis. These organisms are found in butter, milk, on grass, in manure, and even in certain lesions in the body. They have been found, for instance, in an ovarian cyst and in the nasal secretion of healthy and diseased mucous membranes; also in sputum. They stain with carbol-fuchsin exactly similar to the tubercle

*Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Pathology and Physiology. Reported in the Journal of the American Medical Association.

bacillus and resist the decolorizing action of alcohol and acids, that is to say, they are acid-proof.

While these bacteria may readily be distinguished from the true tubercle bacillus by their cultural characteristics or by their pathogenic action in animals, it may readily be seen how they have been the source of error in diagnosis and how they have further complicated the difficult problems of tuberculosis. Some of these organisms stain and decolorize more readily than others. That is to say, they do not all have the same high degree of acid-proof qualities presented by the tubercle bacillus itself. Therefore this also causes confusion in the study of leprosy, especially in staining the *Bacillus leprœ* in nasal secretions.

We can no longer make a scientific diagnosis of tuberculosis by simply staining the bacilli in the sputum, although for clinical purposes this method remains useful. It is necessary to isolate the organism in pure culture and study its pathogenic action on animals. This takes a long time, often a matter of weeks and months.

Therefore, the problem confronts us of finding a media on which the tubercle bacillus will grow quickly in order to save time, and thereby render the process of cultivation a practical one for clinical work.

Of the various media tested we have so far had best success with certain vegetables and fruits. While this work which I am now presenting to you is not yet completed, I am at present able to state that there are vegetables on which the tubercle bacillus grows quite as well, if not better, than on potato. Beet and cauliflower seem especially favorable. Sometimes the growth appears more quickly on these vegetables than on potato.

A good growth of the human variety has been obtained on the following: Potato, cabbage, cauliflower, turnip, carrot, squash, celery, egg-plant, beet and radish, and a small or doubtful growth on apple, onion, cocoanut and pineapple.

It is nothing new to grow micro-organisms on vegetable media, although I have not heard of any one growing the tubercle bacillus on the various substances mentioned, except potato.

For comparison with the tubercle bacillus, I herewith present for your consideration growths on the same fruits and vegetables, of avian tuberculosis, bovine tuberculosis, Karlinski's bacillus of nasal secretion, Rabinovitch's bacillus of butter and margarine, and Moeller's grass bacillus. These growths present a very suggestive picture. We seem to have here a tubercle group, just as we have a colon group. There is

a very considerable difference between the extremes of this tubercle group, also several remarkable points of resemblance. If the tubercle bacillus of man has been specialized by a process of evolution from the more lowly grass bacillus of Moeller, or if the grass bacillus is a degenerate saprophytic form of the tubercle bacillus, there are several missing links between the two. The saprophytic acid-proof organisms resembling the human tubercle bacillus grow readily on the ordinary media used in the laboratory, both at room temperature and in the incubator. A visible growth is often obtained over night. They also have more color than the tubercle bacillus, usually a salmon-red or yellowish tint. The human tubercle bacillus grows as a crinkled, rugous, dry, mould-like mass. Some of the cultures of the acid-proof organisms resembling the human bacillus have a dry, corrugated growth on various fruits and vegetables which is very suggestive.

These few remarks are only given with the specimens herewith presented as a preliminary note of the work now being done on this group of micro-organisms in the hygienic laboratory of the Marine Hospital Service, and a further report will be made at a later date.

DISCUSSION.

Dr. Joseph McFarland, Philadelphia—Did the growth take place in direct proportion to the amount of sugar these vegetables contained?

Dr. C. A. Smith, Atlanta, Ga.—How does Dr. Rosenau prepare his media?

Dr. M. J. Rosenau, Washington, D. C.—The media are prepared just as we prepare potatoes as a culture medium in test-tubes. With an apple corer I cut out a solid plug of the fruit or vegetable; this cylinder is cut in two and each half is placed in a test-tube in the bottom of which is some 5 per cent glycerin bouillon. This is then sterilized fractionally on a number of successive days. Those we prepared to keep through the winter were saturated with glycerin bouillon by filling the test-tube almost full, and when we are ready to use the media we pour off the excess of fluid, leaving only enough at the bottom to keep the vegetable moist.

As to the relation between the amount of sugar in the different vegetables and the growth obtained thereon, this is a very interesting feature. I have not gone into this at all yet, but am doing so from another standpoint and hope to be able to say more about it another time.

Reports of Societies.

LOUISVILLE CLINICAL SOCIETY.*

The Society met with Dr. Philip F. Barbour on Tuesday, April 28, 1903. Dr. Carl Weidner, President, in the Chair.

Urethro-Vesico-Vaginal Fistula. Dr. W. H. Wathen: A few meetings since I reported a case of urethro-vesico-vaginal fistula of small dimensions, which had been operated on by leading surgeons previously without benefit. The patient entirely recovered without any leakage at all, and the sutures have held. About four weeks ago another patient was brought to me from the southern part of the State with a vesico-vaginal fistula just above the urethra, who had been operated on three times without benefit, on account of leakage. She was operated upon by me in the same manner as in the previous case and has made a perfect recovery. About a week ago I operated on another case; this was a recto-vaginal fistula, and she made a complete recovery.

The reason I report these cases is that we now have such excellent obstetricians all over the country that we seldom get any of these vesico-vaginal fistula cases. They deliver these women with forceps in such a manner that sloughing does not occur. I may go for months without another case. In the second place, I want to call your attention to the simplicity of curing most vesico-vaginal fistulas entirely if you pursue the proper technique. I understand very well why it was that these cases were not relieved by these surgeons; they did not pay proper attention to their minor work, their attention being directed chiefly to the more capital work. They probably denuded the surfaces properly, but in the introduction of the sutures they did not pursue the proper method. Instead of putting them in longitudinally, so that when united they would close the wound transversely, they put them in transversely and closed the wound longitudinally. In neither of these cases was the operator able to bring the surfaces together without putting them upon tension, and whenever that is done, within a day or a few days the edges are pulled apart and leakage occurs. But if the wound is closed transversely the vaginal wall is pulled down with ease against the upper part of the urethra; there is no tension, and perfect union takes place. In operations for vesico-vaginal fistula we must always, after the introduc-

*Stenographically reported for this journal by Edgar Allen Forbes.

tion of the sutures, inject the cavity with colored water, so that we can see if there is any leakage. In the last case I found a leakage on the right side, but another suture closed it. This procedure could likewise be carried out in the rectum. I draw their water for a day or two, and after that allow them to pass their urine on the commode. I use silkworm gut and tie it with my fingers. I cut a little of the end off and throw a greater part back into the vagina, and take it out in two days. I put in no iodoform gauze except a strip at the mouth of the vagina. I use no irrigation of any kind, because that carries in ten times more infection than it removes.

The last case alluded to was where I had a recto-vaginal fistula about three quarters of an inch from the anus. With a tenaculum thrust through both sides of the fistulous boundary, with a sharp knife a deep circle was cut away. With the finger pressed against the opening, I could with ease turn out the vagina, and with a straight needle suture the vagina longitudinally with the same ease as if upon the surface of the body. The sutures were then tied with the same ease. They were then turned back into the vagina and removed at the end of twenty-four hours. In this case there was a complication. Just about two inches above the recto-vaginal fistula there was a stricture of the rectum which would not admit the end of my little finger. It had been operated on some years ago. This was cut deeply down posteriorly through the stricture, and one or more lateral incisions made on each side until I could get three fingers through. There was no tearing or bleeding, and iodoform gauze was packed well into the wound and left in for two days. I examined her yesterday and found the opening as large as my three fingers and the hardness passing away. The opening is a third of an inch larger than a No. 9 Wales bougie, which the nurse is introducing. It may be of syphilitic, cancerous, or traumatic origin, but unless cancerous I believe the patient will make a complete recovery. In many instances we can not say what is the cause of these conditions, and the prognosis depends upon that. If I were sure it was cancerous, as soon as she recovers from this operation I would extirpate that portion of the rectum.

Dr. Ewing Marshall: I enjoyed the report very much, and I think that the results that Dr. Wathen gets in his work exemplify a remark of the late Sir William Jenner, who said that more mistakes were made by not looking than by not knowing. Much of the success that comes to Dr. Wathen is due to his careful survey of the field and doing his work

in the best way—in such respects as the introduction of these sutures, for example. That principle applies in every department of surgery—they should be placed in the direction of least tension.

Vulvo-Vaginal Tumor. Dr. Ewing Marshall: I have seen a case lately that I would like to get some ideas on. It is a vulvo-vaginal tumor, small in size, and I take it to be from a sebaceous gland. I would like to know whether there is any use in trying local applications with the expectation of it breaking down and being absorbed. It is just within the vagina and very little larger than an ordinary butterbean. When you catch up the mucous membrane you can feel the tumor move within.

Dr. W. H. Wathen: From the description, I infer that Dr. Marshall's case is a vulvo-vaginal gland with an accumulation of mucous substances, in which case it would resemble the white of an egg, or else it is the result of inflammation and is purulent. The only method of cure is to make a deep and wide incision into the cavity and drain away the contents. If it be an enlargement from the normal secretions, then the same conditions prevail as in the bursal enlargements at the joints, which are difficult to cure. In this case it is better to make a large incision and wipe the cavity out thoroughly with pure carbolic acid, put in a strip of gauze, and let it heal from the bottom. If it is purulent, it will heal like any other abscess. Just here I would like to show how these sometimes result. About three months ago a lady came to me from a distance with a tumor upon one side of the vulva, a projection as large as an orange. It felt hard and I could not say positively from the physical examination whether it was a fibrous tumor or a lipoma, or a liquid with the walls tense. In making the incision over the most prominent aspect and going through the connective tissue, suddenly the pus gushed out. There was about a pint. The entire lining membrane was dissected away; a very tedious procedure, with great tendency to hemorrhage because of the network of veins on each side of the vulva. Then the cavity of this tumor was removed and the lining membrane sutured from the bottom and closed with catgut. This was an inflammation of a vulvo-vaginal gland of long standing.

A few weeks ago I removed a tumor in the same position, except that this one had a comparatively small pedicle, while the other had a large broad base. This also was hard. It was removed by clamping, and my son, Dr. John R. Wathen, immediately opened the tumor and found

that it was likewise filled with pus. This was another case of vulvo-vaginal gland where an abscess had formed and projected outward and pulled the gland out of the tissues and become pedunculated. It is better to dissect away the surrounding membrane and keep the wound open from the bottom. Most of these cases project over to the opposite side of the vulva, and there must be a differential diagnosis made between ferunculous abscess of the vulva and abscess in a vulvo-vaginal gland. The latter nearly always protrudes to the opposite side of the vulva and the other away from the vulva. Curetting the gland would have done no good in the first case, because there was no granulation tissue of any consequence in the lining membrane of the tumor, and there was a well-defined cystic wall.

Lumbar Neuralgia Complicating Nephritis. Dr. J. A. Flexner: I also have a nut to crack. Three months ago I was called to see a gentleman suffering with intense asthma, deep-seated. Examination showed that he had a very large heart, the apex beat being in the seventh intercostal space, and he also had arterio-sclerosis. I learned he had been under treatment for tobacco heart. I gave him some morphia that night for relief and saw him the next day, and found an old chronic nephritis for which the tobacco could not account. Throughout the course of this case for the past three months the feature which has given the most trouble has been a lumbar neuralgia. I tried to relieve it with heroin, codeine, and other remedies without effect. Salicylates, purgatives, alteratives, digestives, and all the others have been tried without effect. Absolutely nothing that has been done has made the slightest impression on the neuralgia. If I give him anodynes that checks the renal secretions and he is worse off in one respect than he was before, and when his kidneys and bowels are acting well he is in intense pain. I would like to get some suggestions as to the treatment.

Dr. G. B. Young: The thing that I have had the most success with in such neuralgias is cascara in small doses, not purgative. I usually start with about ten drops given four times in twenty-four hours and increase it gradually a drop or two, so that he has about two moderate actions a day. I have seen it do a great deal of good in cases of severe lumbago.

Dr. J. W. Irwin: I have been greatly entertained by this report of Dr. Flexner's, especially in recalling what Haig has told us. The administration of these anodynes causes the formation of uric acid in the

system and the things that liquefy must be used for relief. Dr. Flexner has suggested his remedy himself. If he will use a large amount of water and leave off his anodynes, he will get relief.

With reference to the use of one of the new remedies by Dr. Flexner, heroin, I have found that a certain number of people can not take it without nausea. They can take codeine, which does not have the same effect on the heart, and I would rather think that heroin would increase the tumult. Nearly half of my cases have been unable to tolerate heroin.

Dr. G. B. Young : I have had the same experience with heroin in the Marine Hospital. They can not take it at all, not even in one sixteenth of a grain doses.

Dr. J. A. Flexner: I know the supposed relationship between uric acid and these compounds, so I went to work with salicylic acid and the other preparations, but without a particle of benefit to the stomach. To be certain about the matter, I collected the urine for twenty-four hours, and there was in the neighborhood of sixty ounces of plain water and less than a half drachm of uric acid. I have feared organic nephritis.

Dr. Ewing Marshall: I noticed in one of the remarks of Mr. Haig that he says if you do not use salicylates at the right time it does more harm than good, by storing up uric acid in the system.

The essay of the evening, "Marasmus," was read by Philip F. Barbour, M. D. [See page 353.]

Dr. M. K. Allen : It is alarming to note the number of death reports from marasmus in children that are coming in to the Health Office. About one third of the deaths occurring in this city are of children under the age of five years. I have had no experience with the drug he recommends, but the death certificates, especially those which come from institutions, are generally endorsed "inanition," which seems to cover a multitude of diseases. To my mind the cause of inanition is improper feeding. To determine what should be fed is a serious question; just what will be digested and assimilated and nourish the body and maintain the vital forces and the resisting power to other diseases which are the real causes of death is a question for just such men as Dr. Barbour in his special line of work. The results at present do not speak well for the profesion engaged in this work. I believe that with the milk supply that we now have, we will have fewer deaths from inani-

tion. A great many babies fed on artificial foods die of inanition, and the babies of Louisville are being supplied with a better class of milk than they were formerly.

Dr. W. Ed. Grant: I think I will say in defense of Dr. Barbour and his associates that he is engaged in the training of very delicate plants to grow. A medical student was talking to me the other day about "chopping cotton," and I asked him what he meant by it. He told me that they sow the cotton seed continuously in a row, and when the plants get to a certain age they go through with a hoe and "chop" out all but the hardiest plants, which are left to grow. The more I see of human life the more I am impressed with the fact that it is a good deal like plant life and growth. These little babies make strong human beings if they are reared with the proper care, but they have many things to contend with and it is difficult to get them started.

I do not believe much in medicine in the treatment of marasmus, but do know that proper food, good care, proper nursing, sunshine, and fresh air do restore many that we think are going to die. I do not give up these cases, for I am always reminded of a suggestion made by a friend of mine, a distinguished physician, Dr. Palmer. We had one of these cases that we were both distressed about. I was attending to the child at the time, and I said to him, "Doctor, I feel discouraged about that baby, and it looks like we are going to lose it." He replied, "I will tell you what that baby should have." I got out my note-book and pencil to take it down, and he said: "Go tell them to get all the t-i-m-e they can at the drug store and give it to the baby." Time, care in nursing, sunlight, and fresh air I have found very useful. Do not give them up. The institutions are at a disadvantage because they have to feed them on prepared foods and unsuitable milk, and right here I want to congratulate Dr. Allen on the steps he is taking to bring to the houses of our people proper food and getting the other kind out of the market. I remember some time ago, while visiting in Seville, Spain, the guide offered to take me to a foundling institution. I was very glad of the opportunity and went to see the children, who were of all ages from infants up to good stout boys. I found that they had no difficulty in growing these babies, and the secret of this was that they had no difficulty in getting wet-nurses. They had plenty of room and fresh air and good nurses to take care of them, often their own mothers. The opportunity of getting good wet-nurses is greater in Spain than it is here. They do not have to be sought, but come voluntarily. They are paid a

small sum, and, as I said, are in many cases the mothers of infants left there. They have an arrangement by which infants may be put in through a window and the weight of the child rings a bell and a nurse comes and takes the child away. The mother may present herself the next morning as a wet-nurse. All of them are fed by wet-nurses, and most of them are saved.

I was quite interested in the paper and glad to have heard it and the discussion. I believe the complexion of a tuberculous child helps me in making the diagnosis; its complexion is clearer than that of the child with marasmus, whose complexion is usually muddy. In a few cases there is fever to help us out.

Dr. Morris: I have very little to say, but the subject of marasmus is one with which we all come in contact, and is so important that all of us might say something. As to the treatment, I fully agree with the gentleman who has just spoken that it is very limited. There is one thing that occurs to me as of greater importance than any other one thing, and that is the teaching of the mother or the nurse as to what should be done for children. We can not raise the children for them, and we should as a profession instruct them in these duties. There should be some public way, without expense to mothers, where they could be instructed. I believe that more can be done for these children by the physicians in that way than by any form of treatment. If we can get them reared right, with proper surroundings, there would be much less of this trouble. Until that line is adopted, and some means of instruction provided for those who have the care of children, I believe that we will not make much improvement in this direction.

Dr. T. P. Satterwhite: Many years ago, in connection with two other doctors, I conducted the old University Clinic, which was then the general depot for procuring wet-nurses. I have been instrumental, in connection with the University, in raising many of the children of this city. Old Dr. Miller and Dr. Louis Rogers and others were associated with me. There was hardly a week that some one did not write a note asking us to send a wet-nurse.

We all recognize that there is no substitute for breast milk, but it is very seldom now that ladies will resort to the employment of a wet-nurse. Why this is I do not know. I have often begged them to do so. For those who are able, there is nothing that will compare with the benefit of a change of climate. I have seen it in my own family. Before I have gone a hundred miles from Louisville on the steam cars, I

have seen a change in my babies. But of course the majority of children belong to the class that can not resort to this measure.

I do not have much faith in medication. Keep the children out of doors as much as possible and give them cow's milk, diluted with barley-water. These are the best remedies I have been able to employ. Inunctions of oil are good, but keep the little one as much as possible out of doors.

Dr. J. A. Flexner: I have been very highly entertained by the paper and by the discussion. I was very much interested in Dr. Barbour's pathology of this condition, and think he is right in assigning improper food as the cause of marasmus. It occurs to me that we see more cases of marasmus in children who are fed on sterilized foods than in those who are fed with modified milk without sterilization. It seems to me that as between the trouble following the employment of a wet-nurse and the selection of a properly modified milk formula, there is scarcely a family in the city that can not use the modified milk and dispense with the disagreeable features of the wet-nurse. These proprietary infant foods are also bad. I have in mind the case of a child which was being given these foods. It was the most perfect picture of a human mummy I ever saw. The father was a cigar-maker earning $7.50 a week; he had three other children, and the expense of feeding was an important item. It had to be a simple food and easily prepared. I sent across to the grocery and got plain cow's milk and fed it a drachm at a time. This was increased until it was taking a pint or two every twenty-four hours, and this was a great saving in expense to the man. The question of unsterilized food of which the basis is modified milk is the keystone of the arch.

Dr. Ewing Marshall: I have enjoyed the paper and the remarks of the gentlemen, and would add my voice to the out-door treatment. We can understand that the children of the poor in unsanitary surroundings live of necessity in a vitiated atmosphere. These conditions are villainous, but we also find many well-to-do people raising their children in a vitiated atmosphere, keeping them in overheated rooms.

Dr. J. W. Irwin: I had not thought of anything but whooping-cough for twenty-four hours, and now Dr. Barbour has switched us off. I have found the paper and the discussion very interesting. I have noticed that very few of the speakers claim to have cured this disease. Our essayist himself did not claim any cures. If we regard all the cases of disorders of nutrition as marasmus, then of course many cases will be

cured. If we regard the conditions where there are pathological lesions in the stomach and intestines and glands, non-tubercular, as marasmus, then we will have cures in many cases. But in the cases of catarrhal disorders due to improper feeding the correction of the errors is the first step toward a cure. If we are going to treat marasmus where we can not point out the cause except that it has had improper food thrust into its stomach, we must look beyond and find that there is not a single cure. Fresh air, sunlight, and sterilized foods of all kinds will do no good, for they have paresis of the nerves of nutrition and there is no possibility of restoring them to health. But if you regard disorders of the stomach and intestines due to improper feeding at a tender age as marasmus, then correct the errors. It is not necessary to enter into any special treatment. Only correct the errors and then give them fresh air, sunlight, baths, inunctions and so on. They will occasionally get well, but nature can not always react, and many of them will fall victims to the disorder. They do not die of marasmus, but of malnutrition. Marasmus covers a multitude of sins and many of the death certificates so signed should be signed malnutrition. If we come to the question of marasmus and study it closely, we find a condition where the functions of the body fail to respond and decline comes on without any lesions to be observed ; these are the cases we should consider as marasmus, and these are all incurable.

Dr. H. N. Leavell: I think that Dr. Barbour made a very wise change from pertussis to marasmus at this season of the year. This subject is intimately associated with infant feeding, and it is hard to separate them. I believe that most cases of marasmus begin, in the early stage, in improper feeding, and I do not believe that a child born with a healthy organism will have any other kind if properly cared for, barring tuberculosis. I believe the treatment of marasmus is more prophylactic than curative. It is not possible to cure every case of marasmus with any drug, but we must look to the diet and the surroundings. Dr. Barbour has shown that most of these cases are found in dispensary practice, in families with bad surroundings, and we must modify all that. The rule I have observed in the care of infants is to have the mother weigh the child once a week until it has attained the age of nine or ten months or more. I believe if we do that we will be better able to guard against any interference with nutrition. We will be surprised sometimes to find that they do not gain in weight although there is no evi-

dence of malnutrition. A half-pound loss a week may not mean much, unless it persists for several weeks. We will very often find that the cause is overfeeding at night. I believe most of the marasmus is caused by a lack of rest at night. They should not be fed more than twice at night under three months of age, or above three times under five months. We should adopt some rule and give their digestive organs some rest. If we will make it a rule to weigh these babies we will have fewer cases of marasmus.

I have never used the arsenite of copper except in diarrhea, and it has yielded excellent results there. I shall certainly give it a very faithful trial, along with dietetics and out-door measures.

Dr. M. F. Coomes: I have served a thorough apprenticeship in the signing of these death certificates of children while I was at St. Vincent's Orphan Asylum. They died there without hesitation, and without apparently giving me even a chance to save them. I gave up the idea of medicine, and relied almost entirely upon proper feeding and management of the children. This is about all that can be said on the subject. I believe the most worthless of all these drugs is pepsin. If I had a thousand cases that I thought needed pepsin, I would give diastase. Cod-liver oil is the only drug I have ever used with benefit, and in the last few years, with the exception of quinine, I give no drugs to these children except cod-liver oil externally, which is better than internally. I have never tried arsenite of copper.

Dr. G. B. Young: Upon the subject of marasmus I have nothing to say, but since the subject has taken a wider range I may say a word. I have been using the arsenite of copper for about twelve years, and I suppose I antedate a great many people in that respect. For digestive disturbances, not always intestinal, I have found it very beneficial. I do not know of anything that seems to do as well. I give it in even smaller doses than does Dr. Barbour. My custom is to take a hundredth of a grain tablet and put it in two ounces of water and give a half drachm every two or three hours.

The next point is the question of feeding, which I think is one of the most important. As Dr. Leavell said, many of these children are fed too much. I have seen in a number of instances children who were not thriving at all make almost miraculous improvement in from twenty-four to thirty hours after I had brought the mother to understand that they should be fed by the clock and not by their appetites. The organism of the child often breaks down in the attempt to dispose of all the material

that is poured into its stomach. I remember a number of years ago I used to go up to Randall's Island, and the death-rate there was something like 97 per cent. The first time I went into the mortuary there were eight or ten of these little bodies, some on the tables, another in the corner, another under the table, and others scattered all around the room. I understand that now, after failing to do much with sterilized foods, they have changed the character of the nurses and of the food, giving modified milk scientifically prepared, until the death-rate is within reasonable limits.

As to the wet-nurse question, there is no use approaching it in the United States, because the people simply will not have it. The really intelligent mother who will devote the attention to her baby that others do to things of far less importance, with a good milk, a good formula and no sterilization, will have far less trouble than any other. I had some opportunity of looking into the management of wet-nurses in Italy, where the custom of employing them is universal. The poorer classes nurse the children, as the well-to-do classes are opposed to doing so. The arrangement there is made at the time of labor; women are selected through agencies for that purpose, and the wet-nurse is the queen of the whole situation. I remember one who arrived with two large chests of drawers, and she said they were for the purpose of carrying her presents home when she was through nursing. They have everything they want, and no one will raise a finger for fear of spoiling the milk. She generally supports her husband and perhaps other relatives about the place, and when she goes home her employers feel themselves disgraced if they do not load her with all kinds of favors and money. My own opinion is that if the infants can not be nursed naturally, I would get a good formula and feed them by the clock.

Dr. Carl Weidner: I think we have had one of the most interesting papers and the best discussion we have had for a long time. I believe Dr. Allen's attack upon the pediatricians is unfounded. They have greatly improved under new conditions, and I remember the mortality in the older text-books was much higher. Dr. Young's statement with regard to Randall's Island shows this improvement. In that hospital it was formerly 97 per cent, and now it has been greatly reduced.

Dr. Grant's comparison of children to plants is in line with the theory of the survival of the fittest. That is true of animal as well as vegetable life. Some children are born with delicate constitutions and many of them die, and marasmus is a term simply to cover our ignorance of

the cause. I believe that the main thing is intelligent observation on the part of the doctor and training of the mothers, and with our improved knowledge the time may come when conditions will be better. I think that the preventive form of treatment is the most necessary of all.

As to food, I will simply put myself on record as saying that I believe the unsterilized milk is preferable. Sterilized milk is unpalatable and it does not agree so well with children. Dr. Allen has made and is making all attempts to improve the condition of things. Then the next point is to keep the milk in as good condition as possible, and the mothers should be so instructed. It should be furnished in a great deal better way than at present. I believe that ice-carts would pay and the milk might be kept on ice. The family ice-box has done a great deal to protect the lives of children. With these precautions we can lessen the mortality. While Dr. Irwin puts stress on the nervous system, I think that is secondary to the digestive system after all. I think improper feeding is at the bottom of it.

Dr. Philip F. Barbour: I think it was a good thing that I changed the subject; if I had presented the paper on whooping-cough we would have needed two meetings to discuss it. I have been very much interested in the discussion; all of the points have been of interest. I think all pediatricians owe a debt of gratitude to Dr. Allen for his work for better milk. I can only wish him God-speed.

The general consensus of opinion seems to be that medicine does not do much good. That is my experience, and I have presented this paper to you only to introduce arsenite of copper as the drug which I have used more successfully than any other. I give one three-hundredth of a grain three times a day, regardless of age. We have all run the gamut of digestives, prepared foods, etc. Arsenite of copper has given me results in about twelve cases of marasmus that were surprising. Whether it was a coincidence or not I do not know. I only wanted to bring it before you and have you try it. Dr. Grant spoke about the complexion in tubercular cases. Ordinary cases of tuberculosis have fair complexions, but in abdominal types you will find that they are muddy. Dr. Morris spoke about instruction of the mothers in feeding. I wish the doctors knew more about it, and that I knew more about it myself. We do not know to-day what are the constituents of milk. You take a cow fed on hay and slops and put it out on the meadow and the milk will not agree with the child. Why is this? We do not know.

I do not believe wet-nurses are better than a good cow. Most of them want the earth, and they become perfect nuisances.

I did not advise that arsenite of copper be used without any of these other things—sunshine, fresh air, etc. It is the drug in addition to the others that I recommend. They are all good, but they do not cure marasmus. Dr. Irwin says there is no pathology for marasmus. If you can find a pathological condition in the intestine to explain it, it is no longer marasmus. You can not find any lesion at the post-mortem to explain it. My personal opinion is that the trouble is in the absorption of the food. Prophylaxis is an excellent idea if we only knew when to begin it. Cod-liver oil is one of the best things externally. Sometimes when we see these little dried-up fellows we feel that if we could just soak them in oil it would do them good. They can not digest it internally. I always have it rubbed in as hot as the nurse can bear her hands in it. I think cod-liver oil is the best of the oils.

Dr. Young speaks of the dose. His dose is the one I ordinarily employ when I give it for nausea, but in marasmus you have to give a dose which the people will not have to repeat every few minutes. I give it four or five times a day. As to the mortality, I will say for the pediatricians that it has been greatly cut down in recent years. Recently an asylum in Italy had a report of 99 per cent, and a great howl went up all over the country.

One final word. Children in foundling institutions are children of poor parents, frequently illegitimate children, and have to contend with general debility. No nurse will take care of a child as its own mother would.

As to Pasteurized milk, it is my preference for milk in this city. If you can get a cow in perfect health that is better. Otherwise, the Pasteurization of milk, raising it to the temperature of 160°, does not change the taste of the milk or affect nutrition, while it does prevent bacterial changes.

THE AMERICAN PRACTITIONER AND NEWS

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THE EFFECTS OF THE X-RAY UPON TISSUES.

Recent experiences with some operators have demonstrated that the X-ray destroys to a degree the vitality of tissue other than the diseased structures, and yet this is not demonstrated until operative procedures have been instituted. A recent experience of Dr. Jesse Dunn, of this city, is strongly confirmatory of this fact. He had rayed a breast preparatory to its removal, and the operation of removal was completed. In twenty-four hours after the operation the parts along the line of the incision showed evidences of death, and in a short while all of the tissues of the flaps for fully an inch outside of the line where the stitches were placed had completely sloughed out, leaving a large open wound which healed very rapidly by granulation—much more rapidly than would be expected in a surface of its size under ordinary conditions.

We are of the opinion that raying before an operation of any kind is contraindicated, even if the tissues would heal readily directly after the ray had been used, because it is certain that the ray is a powerful stimulant, and it would seem that there is a great danger of disseminating the cancer cells and producing general cancer. We can not see why the ray should be used before an operation, as there is no possible hope of doing any more good with the ray before an operation than after it.

Current Surgical and Medical Selections.

Compelling Temperance by Law.—The saying that "You can not make a man temperate by act of parliament" has evidently a British origin and there has certainly been no tendency heretofore in that dominion toward prohibitory laws. Notwithstanding this, it seems to be a fact that one of the most stringent anti-liquor laws has just gone into effect there, and the consequences will be worth watching. Instead of being prophylactic against drunkenness in the way of prohibition, it is directly punitive. Drunkenness itself is made an offense, whether the individual is disorderly or not, and repeated convictions make the offender, as it were, a habitual criminal subject to compulsory detention for a considerable period up to three years. The appearance before the court and conviction more than a certain number of times, moreover, puts the individual on a published blacklist, and the personal responsibility of dramsellers as regards those thus listed is to be stringently enforced. The working of the law will be watched by all who are interested in the reduction of the evils of intemperance. If inebriety is a disease, as some claim, the provisions of the law would appear to be harsh, unless, indeed, we assume that, though a disease, it does not diminish responsibility. Probably the British magistrates will accept this view if the disease theory is pleaded before them, and it would certainly be unreasonable to permit disease to be a license to commit offenses against good morals and public welfare. The London and Glasgow police will have their hands full if they construe the law with any strictness, and the licensed dealers will have to walk in narrower paths than they have been accustomed to if they wish to keep out of trouble.—*Journal American Medical Association.*

Liability of Hospital for Assault on Patient.—The case of Galesburg Sanitarium v. Jacobson, as it is entitled in the Appellate Court of Illinois, Second District, was brought by the latter party to recover damages from the former, a corporation conducting a hospital, in which he was a patient for some two months, and, he alleged, was assaulted, beaten, mistreated and injured by the servants and employes of the institution. He was ill, the court says, and was a patient residing at the hospital for treatment, and was paying for the services he received, and he was entitled to reasonably kind treatment, so far as the nature of his malady would allow. No assault on him was justifiable, except so far as it was necessary to control him at times when he was insane or delirious. On the occasion in question the servants unnecessarily abused him, and inflicted on him injuries for which the jury were warranted in holding the master responsible. There was no claim that this was a charitable institution, nor any question as to its liability for the negligence of its employes on that account. The fact that the jury awarded but $100 as damages indicated they were not governed by passion or prejudice.—*Ibid.*

Special Notices.

"Are You in Pain?"—You will probably ask this question more frequently than any other. Nothing appeals to one more strongly. To be able to relieve pain, whether it be a slight nervous headache or the most excruciating suffering from a severe neuralgia, brings the height of pleasure to both patient and attendant. The ideal remedy must not only do its work, but it must also do it quickly. Touching this point is an article in the Boston Medical and Surgical Reporter, by Hugo Engel, A. M., M. D. The author says: "Antikamnia has become a favorite with many members of the profession. It is very reliable in all kinds of pain, and as quickly acting as a hypodermic injection of morphia. It is used only internally. To stop pain one five-grain tablet is administered at once; ten minutes later the same dose is repeated, and if necessary, a third dose given ten minutes after the second. In ninety-two per cent of all cases it immediately stops the pain." Further on Dr. Engel compares Antikamnia with the other coal-tar derivatives. He says that while some of these are valuable remedies for the relief of pain, "not one of them is so certain in its effect in comparatively as small a dose and so prompt in giving relief as Antikamnia in every kind of pain." This uniformity in its action leads him to believe that Antikamnia possesses properties differing from the other coal-tar products, while it is certainly free from danger if given in anything like reasonable quantities, which is not the case with other products from coal tar. Five-grain Antikamnia tablets afford the most accurate and convenient form for administration.

Papine.—In discovering this drug Battle & Co. have conferred a lasting favor on the medical profession. We know the opium of which they make their Papine is the best. Papine has a place in my medicine case and it is emptied as often as any vial in the whole case. I nearly always have a bottle with my obstetricial cases for after-pains and always feel like it will do the work. I used it lately on a case of threatened abortion with excellent results, also in a case of severe uterine colic. I find that with Papine I do not have to use my hypodermic syringe so often. W. E. Russell, M. D., Wyatt, Texas.

Coca as a Heart Tonic.—We are accustomed to consider the term stimulant as a something which acts as a whip to goad the animal on to greater physical exertion, following which there is a corresponding period of depression. Whether this be true or not, there are conditions where any means may be allowable and necessary, as in passing some slough of extreme emergency, when the physician stakes all on the success of his measures. Properly such an application of stimulant belongs only to an alcoholic, but owing to the paucity of terms in concise definition, other substances are also pronounced to be stimulants which do not possess these qualities. Because of this association of terms in substances differing in properties they are all commonly considered as of identical action with alcohol. Coca is therapeutically classed as a nervous stimulant, but, unlike any other substance, its use is not followed by depression. The action of coca is unique. Primarily it affects the cerebral cells but with this it has a depurative influence on the blood, freeing the circulation from waste, and because of this rendering the possibilities for repair in every organ of the body favorable. Owing to the subtle action of coca on the muscular structure, it has rightly been advocated in disease of the heart associated with muscular deficiency. Unlike digitalis, it does not simply increase muscular power, an effect which in certain cases might be a disadvantage, but by a chemico-physiological change induced in the muscular substance it aids toward repair, a process which is augmented through a purified blood stream. The ideal of a tonic-stimulant the use of which tends to the permanent betterment of any depressed condition is presented in Vin Mariani, which embraces the true qualities of the whole coca leaf, selected under special facilities, and scientifically preserved in a mild and wholesome wine.

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American Practitioner and News

A Semi-monthly Journal of Medicine and Surgery.

H. A. COTTELL, M. D., M. F. COOMES, A. M., M. D., Editors.

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THE

AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

VOL. XXXVI. LOUISVILLE, KY., JULY 1, 1903. NO. 1.

Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

CHEERFULNESS IN THE SICK-ROOM.*

BY T. ATCHISON FRAZER, M.D.

Ex-President of the Ohio Valley Medical Association, etc.

The humble physician, in his routine work, sees more sad faces perhaps than any other professional man. His work carries him into both the mansion and the hovel. He sees life stripped of the superfluities of pomp and pride; he listens to the tales of woe from the rich and poor alike, and he gently and patiently soothes the anguish of the mother and babe, the father and son, and he is ever ready to respond to the calls of the sick or injured, the distressed or oppressed either in body or mind, and he is present in all the trying times of life. He is also present to comfort and console when the "grim reaper" bares his scythe to clip the brittle thread of life. He sees the mother weeping over the lifeless form of her precious babe, the father in agony over the loss of his favorite son, the husband's grief over the loss of his faithful companion, the wife in anguish over the death of her kind husband—yet, with this dark picture so often before our eyes, we should cultivate cheerfulness.

Often we are summoned to the bedside of the sick, with orders to come as quickly as possible. We go with all possible speed, and when in sight of our destination we see the sad parents watching anxiously for us. It is whispered from one to another, "The doctor is coming"; all concerned will give a sigh of relief. They feel that with the humble doctor

*Read before the Ohio Valley Medical Association, June 11, 1903.

comes relief. They place the little patient in our charge with implicit confidence almost divine in its nature; they watch our every move and act; they feel that something is going to be done for their loved one; they expect us to give them good cheer and to give their baby boy relief from his suffering.

We should enter the sick-room with that expression of kindness and self-composure that will inspire the confidence of all concerned; we should be gentle and patient in our examinations; we should be deliberate in our opinions and cheerful in our deportment and give our prognosis with rose-tints if the circumstances will admit.

It never does any good to enter the sick-room like it was a death-chamber. It does no good to draw down our eyebrows and make "crow-feet" on our foreheads when we enter the sick-chamber, and it often unduly alarms our patient for us to be too dignified. We should be cheerful, jolly the "little ones," have a kind word for every one present, and be polite and affable.

There is nothing on earth that is cheaper than politeness, and yet there is nothing that pays a larger dividend. If we can not laugh, we should learn to laugh. A good laugh is often better than a bad dose of medicine. Learn to tell a story. A good story well told in a sick-room is like a sunbeam on a cloudy day. Learn to keep your troubles to yourself. Sick people care but little for your ills or sorrows. If the world looks gloomy to you, keep it to yourself, and hide your own aches and pains under pleasant smiles. The patient does not enjoy hearing you groan and grumble about your rheumatic joints or neurotic headaches. Don't cry! Tears have their effect in a novel, but they are out of place in a sick-room. Save them for the death-chamber and funeral. Learn to greet your patient with a smile. A good-humored doctor is always welcome, but the dyspetic, rheumatic, or hypochondriac physician is a common nuisance. Above all things, we should never fail to make people as pleasant as possible. Pleasure is the most sought-for commodity that exists, and in no case can we be too kind and tender with our patients and patrons. We will pass through this world but once, and therefore any good thing we can do, or kindness we can show, or sad heart we can gladden, we should do it now, for if we defer or neglect, we let the opportunity pass that will not come our way any more.

Many of us are too prone to give our patients nauseous drugs. Don't burden them with medicines they do not need, but bathe their

brows with the milk of human kindness and soothe their minds with kind words.

Once I was riding along with a fellow-physician who was going to consult with me in the case of a little girl who had been lingering between life and death for several days, suffering with typhoid fever. The consulting physician was an elderly man of the most genial Kentucky type. As we rode along, he saw some wild roses by the wayside. He at once halted, got down, gathered some of the roses, and I curiously asked him what he would do with those roses. He replied, "I know that little girl, and these roses from me will do her more good than any suggestion I can give in her case." I watched their effect. I saw her pale lips quiver when this fatherly doctor handed her the roses; the sunken eyes sparkled as they had not since the beginning of her illness, a sweet smile played over her pallid face, and the little wild flowers had their desired therapeutic effect.

Light is one of God's greatest blessings, and we can not have a cheerful sick-room unless the sun's golden rays are permitted to freely enter. How often we enter the sick-chamber and find shutters closed or blinds down, as if one ray of sunshine meant death to the patient; and it always looks gloomy, not only to the patient but to all present, to make the sick-chamber a dungeon. How often have we heard sick people say, "It looks so bright out of doors!"

Air is another element that adds much to the cheerfulness or gloom of the sick-room, as the case may be; and air, like politeness, is also one of the cheapest things we know of, and it will force itself upon us unless we barricade against it. And often we enter the sick-chamber after riding in the fresh, crisp air to be almost suffocated in this barricade of impure air. If we can have a well-ventilated, well-lighted apartment, with cheerful, pleasant attendants for our patients, it is a pleasure to us to visit them, and it is also easy for us to be cheerful and inspire confidence by our deportment.

Another very important step toward making our patients comfortable and keeping them in good cheer is to have control of the friends who visit them. It often happens that some motherly woman comes into the sick-room just to "cheer them up a little," and tells of all the accidents and deaths that have occurred in the neighborhood since the patient has been sick, and perhaps of a dear friend who has died or met with misfortune, or of some one who died years ago "whose illness commenced just like yours." It is ridiculous for such things to occur

in any civilized community, but we who bear the responsibility of the sick meet with such a state of affairs quite frequently.

Music adds cheerfulness to the sick-chamber. Often the "wee" ones, as they hum their sweet melodies to the rag-doll in their arms, will cheer and comfort the sick mother or father, sister or brother; and the prattling babe, in its swaddling-clothes, adds unconsciously its quota of glad tidings and good cheer to the sick-room. And often we have observed the sweet smile of the sick mother when she would behold the face of her sweet babe, and say in the most tender words, "Mamma will be able to nurse you in a few days," and this thought to the sick mother inspired hope as sweet as life itself.

To be cheerful in the sick-chamber is not always a small undertaking. It is an art we should cultivate just as we study any other therapeutic measure, and we should study it while out of the presence of the afflicted, that we may practice it the more successfully in their presence.

If we go to our meals with a long face and heavy conscience we will go to our business with indigestion, so if we go to see our patients with long faces and frowning brows we will leave them discouraged and unbenefited by our visit.

The field of the general practitioner is so broad and his labors so arduous that he often forgets the sunshine of life. The mist and gloom that often hover over us, and often seems that it will overcome us, quickly vanish when penetrated by the brilliant rays of a cheerful heart; the tired limbs and the overworked brain soon resume their normal functions when we drop out of a world of labor into a world of refreshments.

While life is a very serious proposition, we are often prone to make it too serious. We often fail to appreciate a friend because we do not know his worth. We also often fail to appreciate salient features in life because we do not throw aside the curtain and look at life as a reality.

Now that I have served you a year as President, it is for you to say whether or not I have served you well. The responsibility, indeed, is great, while the work of the year has been at all times pleasant. There has been no discord to mar our deliberations, there has been no strife to brush away one ray of sunshine, and the members of the Association have stood in one solid phalanx like gallant soldiers, and have held up the hands of their presiding officer and have greatly contributed coun-

sel and wisdom to make this the banner year of the Association's existence. I wish to place a wreath of American Beauties on the table of our Secretary, and I feel sure that the Association will join in hearty congratulations to him for his faithful and conscientious work for the past year. And I wish to express my gratitude to the committees, both in Evansville last fall and here this spring, for the noble work they have done to crown our efforts with success.

Now, in conclusion, let us take up renewed energy and inspiration to make our time-honored profession better year by year, and let us return to our labors with hopeful minds and cheerful hearts, and look on the sunny side of life and life's work.

MARION, KY.

PHLYCTENULAR KERATITIS.*

BY M. F. COOMES, A. M., M. D., LL. D.

Professor of Physiology, Ophthalmology, Otology, and Laryngology in the Kentucky School of Medicine; a Member of the American Medical Association, the Kentucky State Medical Society, and the Louisville Clinical Society; Ophthalmic Surgeon to the Louisville City Hospital and the Kentucky School of Medicine Hospital; Consulting Ophthalmic Surgeon to Sts. Mary and Elizabeth Hospital; Ophthalmic Surgeon to St. Anthony's Hospital, etc.

This is a disease that is principally confined to childhood, but is occasionally met with in young adults, and especially in young women more frequently than in men.

In some of the books it is found under different heads, as keratitis lymphatica, keratitis scrofulosa, eczemosa, etc. Its pathology is not very well understood, although it is claimed that a specific organism is found in connection with it.

It is certainly met with more frequently in children who are poorly nourished than otherwise. By some it has been classified as a poverty disease, claiming that those suffering with it were in want of better food, light, air, etc. One writer has gone so far as to say that it was due to the presence of lice on the scalp. I can only say that such is not the case, for in the great majority of the cases which have come under my observation there has rarely been vermin about the scalp. The writer who suggested this was I think a Russian, who, no doubt, saw his cases among the peasants of that country, where I am told that with certain classes it is almost a disgrace to be clean. It is found

*Read before the Louisville Clinical Society, May 26, 1903. For discussion see page 28.

in all walks of life, but there is no doubt about the fact that every person suffering with the disease is in a poor state of nutrition.

This would lead me to believe that the prime cause of the disease was due to faulty action of the lymphatics in the vicinity of the cornea, either directly or indirectly; directly by not receiving the proper stimulation from the nervous system, indirectly by being diseased by a germ of some kind which we are not yet familiar with that vitiates the action of the terminals of the lymphatics in the immediate neighborhood of the diseased area. We all know that all ulcerations which are not the result of direct injury, such as strangulation and the cutting off of the blood-supply, must owe their existence to faulty action of the lymphatics or of the nerve-supply of the part diseased, or to both.

In the disease under consideration there can be no doubt of the fact that in the great majority of cases there is faulty nutrition; that nutrition is below par, and especially is this true of the localized zone or territory in which the ulcer is located. I question the fact of the sore in these cases being classified as an ulcer, because it is nothing more than an abrasion of the epithelium in a circumscribed area. This so-called ulcer, in its early stages, looks like a little bleb, due to an elevation of the epithelium, and in truth this is the real condition. Later on the crown or top of this elevation is removed by friction of the lids, and then the characteristic spot on the surface of the cornea is manifested.

In the great majority of instances this is the limit of this particular ulcer, if we may call it such. Reparation begins, and in a few short hours all evidence of its existence has passed away. Again, such a fortunate termination may not result, but the deeper structures of the cornea become involved, and added to lacrymation and slight intolerence of light which existed in the early stages is intense photophobia, excessive lacrymation, and great pain. So much does all the primary symptoms become exaggerated that the little sufferer buries his or her head in the pillow at the break of day and remains like some nocturnal animal until after dark, and then only ventures to peer out after careful inspection for fear of the pain. This picture is a familiar one, and one that in years gone by was met with by both practitioner and specialist with dread, because of their inability to relieve the sufferer. Thanks to modern advances in therapy for our relief in this particular disease, we are now able to cope with these cases in almost all instances; that is, being able to mitigate these painful, persistent symptoms and to

rapidly, in most cases, restore the patient to a normal condition, although there are exceptions. The tendency of the great majority of these cases is to recovery, while a few seem to be the opposite; that is, they will not resume the normal under the most persistent use of drugs, with all the other agencies that we can bring to bear upon them.

It is such cases as these that go to ruin in the hands of the general practitioner, because he relies, as a rule, on routine treatment, which is well enough as long as there is no serious involvement of the deeper corneal structures, where perforation is liable to take place. Whenever a child with this or any other corneal disease refuses to open its eyes sufficient to enable a thorough inspection of the cornea, then it is necessary to inspect by force—that is, to separate the lids with a retractor and see the exact condition of the diseased area, for upon this will depend what you have to say to the parents from day to day in such cases. They will always want to know if the eyes are in good or bad condition, if they are getting better or worse, and such information can only be given after ocular inspection. This examination is often seemingly cruel and painful, and in some instances it is painful, but in the great majority of instances there is little or no pain connected with the retraction of the lids, although the patient will fight and resist most persistently. It matters not how often the examination is repeated, they never get used to it. In retracting the lids care should be taken to avoid pressure upon the eyeball, as rupture of a thinly-walled ulcer might be brought about by pressure upon the ball. It should be remembered that in small children inspection by retracting the lids must always be done by main force; that is, the child will have to be held by assistants while the eyes are inspected.

Treatment. The treatment of these cases is always interesting to all of us, first, because they are always a matter of serious consideration both on the part of the parents and the child, because the eye is an organ of special sense which is the most essential in point of service and beauty to the patient. First of all, the general hygienic surroundings should be the best that can be had; none will be too good. In children of tender years, that is, from a year old up, the greatest care should be given to their bodily comforts. See that they are not too warm or too cold, and that they are free from the annoyances of heat, eruptions, etc., and that they are so situated as to get the requisite amount of sleep and fresh air, which are, if anything, more essential than good food.

Food. As to the kind of food that these patients should have, I think there can be no doubt. It should be the albumins or albuminoids; that is, lean meat, milk, eggs, and kindred substances, although I would not advise withholding other foodstuffs in moderation. In hot weather, where the bath can be had, two or three baths in tepid water, that is, morning, afternoon, and at bedtime, will do much to make the patient comfortable and to hasten reparation.

Internal Medication. At the head of this list are the alteratives, and especially those containing iron. In the syrup of the iodide of iron will be found an ideal for the great majority of these cases. In my hands this has proven most beneficial; it seems to be almost a specific in all cases. It may be pushed to the limit without danger, as the most unpleasant thing that can occur from its use will be a slight diarrhea or headache. In young children, that is, a year old, from three to five drops, and increase up to ten unless there is some disturbance in the alimentary tract. This may be kept up for weeks and months by running the dose from the minimum to the maximum every six or eight days, and then omitting altogether for two or three days. Small or tonic doses of the bichloride of mercury are often very beneficial. The bitter tonics in older children and young adults are often useful adjuncts.

Local Medication. My opinion concerning local medication in these cases differs very materially and, I might say, is quite directly in opposition to nearly all of the text-books on the subject. Nearly or quite all text-books recommend the use of atropine in these cases for the relief of pain and as a general routine treatment. This, to my mind, is radically wrong, because it—the atropia—dropped into the eye produces mydriasis or dilatation of the pupil, thus admitting an excessive amount of light and adding pain and discomfort to the patient's already miserable condition. The only thing that can be expected from the atropine is its anodyne effect, which is evanescent at best, and any good in that direction is very much overbalanced by the aggravation of the excessive amount of light admitted to the already sore and painful eye, hence I insist that its use is contrary to existing conditions of things, or more properly speaking, it is contrary to the indications in such cases. The chief aim should always be to cut out as much light as possible and to stimulate the local circulation, which is properly and readily accomplished by the use of eserine sulphate in solution in the strength of one grain to the ounce of water, instilled into the eye every six hours in acute aggra-

vated cases, and twice in twenty-four hours in ordinary cases where the symptoms are mild. I have pursued this line of treatment for years and have always had the most excellent results; in fact, I can not recall a single case that has not made a good recovery under this line of treatment. However, I do not wish it understood that all of my cases recovered with perfect eyes, for many of them were in a serious condition, with permanently injured eyes, when they came under my observation, and of course, recovered with cicatrices, etc., but in all cases that I have seen in their incipiency I can not recall a single case where I had a bad result.

I am sure that the duration under this treatment is much shorter and much more satisfactory than by the use of atropine, which you all know makes a well person uncomfortable if instilled into the eye, to say nothing of putting it into the eye of an irritable, helpless babe. As to the use of other agents locally, aside from the use of boracic acid solutions to soothe and cleanse, I rarely use anything. Occasionally the yellow oxide of mercury in the form of a weak ointment applied to the inner surface of the lids at night proves beneficial, but in all cases that come under my care eserine first and last, unless there is something very extraordinary in connection with the case, as severe pain, which persists, and which does not yield to an application or two of cocaine; then I would apply the atropia, but I would also continue the use of the eserine. The fear of iritis in these cases is more mythical than real, for in all of the years that I have pursued this plan of treatment I have not met with a single case of iritis, nor have I seen an eye injured by the use of eserine.

LOUISVILLE.

THE TREATMENT OF DRUG ADDICTION.*

BY J. H. KELLOGG, M. D.

I desire to state at the outset, that in this paper I shall not attempt an exhaustive consideration of the subject, but shall merely endeavor to present a few suggestions in relation to the practical management of cases of drug addiction which are, in large part, the outgrowth of my personal experience in this class of cases.

First of all, I wish to present the fundamental proposition that drug habits are not to be cured by drugs. Of course, symptoms may be palliated. Temporary relief may be obtained. Patients may be, for the time being, persuaded to renounce the use of some drug to which they may be addicted, but sooner or later the patient will relapse, or will fall into the clutches of some other enslaving drug equally baneful in character, or even more pernicious in its effects. The only radical cure for a drug habit is to lift the patient out of the slough of vital bankruptcy into which he has fallen, to improve the quality of his tissues, and to place his functional activities on a higher vital level.

The drug habitue is not simply a man possessed by a perverted appetite, a craving for artificial felicity, but, if his drug addiction is continued for some time, he is thoroughly perverted physically, often mentally, and in a majority of cases, morally. In the therapeutic management of such cases it has been found necessary to bring to bear physical, mental, and moral remedies.

The result of moral influences is well shown in the multitude of drunkards who have been reclaimed by various temperance organizations, slum missions, and the Salvation Army. Many a drunkard, under the influence of strong religious feeling, has broken loose at once and forever from the fetters which had for years enthralled him. I am personally acquainted with scores of instances which illustrate this fact.

The weakening of the will, the loss of fortitude and morals which result from long enslavement to a drug, together form a most serious obstacle in the way of permanent recovery in a large proportion of chronic cases. Unless the patient can be restored to a normal condition in these respects, actual and permanent recovery can not be hoped

* Read at the annual meeting of the Medical Temperance Association at Boston, Mass., December, 1902. Reported in Modern Medicine.

for; for however completely he may be delivered from the physical thralldom into which he has fallen, he will sooner or later relapse, unless traits of character are developed which may serve as a safeguard to prevent his falling into the same pit again.

I desire, however, to dwell especially upon the physical means employed for restoring the patient to such a degree of physical soundness as will, as far as possible, diminish the temptation and the tendency to relapse. The substitution of one drug for another will not meet the requirement. The patient must be vitally changed; he must be placed in a physiological condition. In many cases this requires that he shall be made better than before the drug addiction began, for the fundamental cause of drug addiction has been a predisposition to the drug from long-continued mental strain or disordered digestion which has undermined the patient's general health and developed a neurasthenic state, abnormal nervous irritability, and a general physical decadence, with the mental and moral deterioration which naturally follows.

It is not sufficient to simply help the patient through the ordeal of relinquishing the drug and escaping from his reliance upon daily or periodical dosing with morphia, cocaine, alcohol, or whatever may have been the poisons to which he has been in subjection. He must be free from drugs of every sort. He must be supplied with better nerves, a better store of nervous energy, better metabolism, cleaner blood—richer in red cells and hemoglobin, and with a higher degree of alkalinity. His hepatic and renal activity must be improved, and all his nutritive processes brought as nearly as possible to the normal state. Tonics apparently work well as long as the patient's vital capital is large, but when the actual store of nerve energy has been reduced to the minimum, the tonic acts only as an irritant whereby the patient is enabled to exhaust his small capital to the point of danger, perhaps to actual physical bankruptcy.

Nerve sedatives also seem to afford substantial relief until the recuperative powers have been wasted to that degree that the vital functions can no longer maintain their integrity under the depressing influence of the drug. Every hypnotic adds to the burden of the liver and the kidneys; the one, as a destroyer of poisons, and the other as an eliminator of substances dangerous to the interests of the vital domain. A person who has been long addicted to the use of drugs has taxed these organs to such a degree that their functional activity

is greatly impaired. The natural body-wastes are left to accumulate, especially the class known as the purin bodies, which result from proteid and nuclein metabolism.

No method of cure can be substantial or permanent which does not take account of this factor, and which does not provide for the relief of the burdens which have been imposed upon the great vital organs upon which the essential processes of life depend. Opium, cocaine, alcohol, theobromin, caffeine, and other drugs of kindred character exert a remarkable influence in perverting metabolism. They lower the alkalinity of the blood and diminish the resistance of the tissues and lower the general vital resistance.

A man under the influence of alcohol has less ability to resist cold, and is more liable to contract pneumonia and other infectious disorders than the man who is in a normal state. The same thing is true, in a greater or less degree, of other narcotic drugs. Hematogenesis, leucocytosis, diapedesis, and other functions which lie at the very foundation of a healthy life, and which are essential to a successful combat with the enemies of health with which every human being is surrounded, are all more or less seriously interfered with by drugs of every description.

This has been clearly shown by Roger, Charrin, and others, who have demonstrated that while various drugs lower vital activity and diminish vital resistance, there is no drug by which vital resistance may be increased; that is, there is no medicine that a man can take which will render him less liable to contract smallpox or pneumonia or typhoid fever, or which will diminish his vulnerability to la grippe or any other infectious malady, except, of course, such remedies as may by arresting gastic or intestinal fermentations or cleansing the alimentary canal from putrefactive material lessen auto-intoxication by temporarily removing the cause. The only measures which can possibly prove permanently effective in restoring the victim of drug addiction to physical soundness, which will enable him to stand, are those physiological measures by which the natural resisting powers of the body are enhanced, the normal curative processes facilitated, and the vital functions promoted.

The methods of dealing with common forms of drug addiction which I have been led to adopt in dealing with a large number of cases of this sort during the last twenty-five years, and which

have been based upon the above principles, may be briefly outlined as follows:

1. The patient's thorough co-operation must be secured in the effort to restore him to a physiological state. He must understand that we are seeking to accomplish something more than simply to relieve him of the necessity of taking a drug in order to be reasonably comfortable. If we do not do this, the patient is certain to insist upon returning to his ordinary life within a week or two, for the immediate demand for the drug can be very quickly conquered by the measures which I shall briefly outline later, and the result of a too early suspension of treatment in a great majority of cases will be a speedy relapse. As long as all goes well with the patient, physically and mentally, he will maintain his freedom; but pain, business complications, disappointments, domestic trouble, whatever brings upon him any unusual nerve stress, will almost certainly drive him back to his familiar refuge. The patient must be brought to a state in which he will be able to bear any reasonable degree of nerve strain and worry without succumbing physically and morally to the strain to which he is subjected.

To accomplish this requires from a few weeks to several months—reasonable time for tissue renovation. It takes as long to secure a crop of health through tissue regeneration as to raise a crop of corn. In extreme cases many months are required to place the patient upon a physiological footing. Of course, there are cases in which the drug addiction has existed for only a short time, in which functional and structural perversion are not yet to any extent developed. In such cases four to six weeks or even a shorter length of time may suffice, but these cases are generally managed successfully by the home physician and rarely come under the care of an institution.

When these principles have been made clear to the patient and he has accepted the situation, we are ready to begin active therapeutic work. There is no use to temporize. We must attack the roots of the upas tree which has grown up within the patient and has spread its branches over all his life.

The first step in the treatment of a case of morphia addiction, for example, will be the employment of sweating baths for a few days, usually three to five. Turkish, Russian, and vapor baths are employed, or even a hot-water bath—any form of sweating will answer very well—but the electric-light bath is to be preferred. The patient's

temperature should be taken before the bath, and at intervals of ten to fifteen minutes during the bath. The latter should be prolonged sufficiently to raise the patient's temperature two to three degrees. A febrile temperature is necessary to secure the increase of oxidation of proteids which is necessary to burn up the uric acid and allied wastes with which the body, in these cases, is always supercharged. By getting rid of these nerve irritants which produce spasm of the smaller arteries and capillaries, and thus exhaust the heart with overwork and seriously interfere with the eliminative processes, we are relieved of two of the greatest inconveniences which immediately follow the withdrawal of the drug; namely, cardiac failure and unendurable nervous irritability.

Another advantage gained by these baths is improvement of the skin functions. The skin of old morphine habitues is often so inactive as to closely resemble parchment. Thermic stimulation rouses the activity of the sweat glands and relaxes the skin vessels, thus withdrawing from the congested viscera a large part of the surplus blood with which they are overwhelmed, leaving a venous stasis which impairs the function of the liver, stomach, and other chylopoietic organs. From one half to two thirds of all the blood in the body may, by these heating measures, be thus drawn into the skin. There are no means so powerful for preventing the diarrhea which is often present, preventing or combating intestinal congestion and activity which gives rise to watery stools in these cases.

To give permanence to the dilation of the skin vessels the hot bath must be followed by a short but very vigorous cold application. This may be a shower bath, a needle spray, a wet-sheet rub, a shallow bath, a towel rub, or a cold-mitten friction, according to the vigor of the patient and his power to react. The duration of the hot bath should ordinarily be not more than fifteen or twenty minutes. It may be repeated twice daily. The proper gauge for the duration of the bath is the patient's temperature. The bath should be terminated as soon as the temperature reaches 101° to 101.5°.

The diet and general regimen of patients are highly important, and these should be established before beginning the withdrawal of the drug. Flesh foods and animal broths of all sorts should be discarded, for the reason that they are nerve irritants. What the patient needs most of all is food that is easily digested and which may be readily converted into healthy nerves, and from which stores of nervous en-

ergy can be easily drawn, while, at the same time, there is no increase of uric acid and other tissue poisons which are already present in the body to an excessive amount.

Professor Hall, of Owens College, Manchester, England, has shown within the last year that beefsteak contains sixteen grains to the pound of uric acid, while the liver contains nineteen grains, and the sweat glands seventy grains to the pound. Beef tea, beef broths, and beef juices contain little or no nutriment, but practically all the uric acid and other tissue wastes.

My experience warrants me in saying that the withdrawal of these nerve irritants greatly facilitates the cure of drug addiction in every form. The craving for the drug is, in some instances, entirely removed by the withdrawal of flesh foods and their derivatives. Proteid nutriment may be readily supplied in much more easily digestible and assimilable form by means of eggs, kumyss, kumyzoon, kephir, and buttermilk. Patients who have good teeth and are fond of nuts may be liberally supplied with them, especially blanched almonds, Turkish hazelnuts, pecans, and other fresh edible nuts. Nuts are even richer than beefsteak and proteids, which containing a large quantity of easily assimilable fats and carbohydrates and a large amount of salts. It is only necessary to take care that mastication is performed in so thoroughgoing a manner that there are left no irritating particles to disturb the stomach or bowels. Mustard, pepper, pepper-sauce, and irritating condiments of all sorts must be wholly discarded. The diet must be made very plain and simple, but inviting and tasty. Fruits, especially stewed fruits, prepared with the smallest possible amount of cane sugar, or better, by mixing sour and sweet fruits, and such ripe fruits as strawberries, peaches, and grapes are highly useful in these cases. Oranges may be freely used with advantage except in extreme cases of gastric catarrh and gastric ulceration.

The patient must be encouraged to live as much as possible in the open air. In cold weather he should sleep with the windows open, being protected by plenty of blankets and necessary wraps about the head and shoulders.

During the preliminary period in which the above treatment and regimen are being carried out, the patient is encouraged to reduce the quantity of the drug as much as possible; but the withdrawal is not carried to the point of inducing great nervous disturbance, pain, or sleeplessness. In most cases the quantity may be easily reduced one

half in the first three or four days without the patient's suffering any particular inconvenience. Sometimes even a larger amount may be withdrawn during this preliminary period.

When, finally, the patient's condition is believed to be satisfactory, preparation is made for complete withdrawal of the drug. The patient is placed in a room containing a bath tub, or having a bathroom adjacent. Two attendants are provided, and preparations are made for a busy and interesting time. For twelve to eighteen hours there will be an earnest struggle—not that the patient is going to suffer to an extraordinary degree, but the attendants will have their hands full to do all the things that may be done and should be done to help the patient in his struggle for freedom. It is generally wise to begin the withdrawal by omitting the morning dose the day before the drug is to be withdrawn altogether. The next day the evening dose is omitted. The following morning the patient receives the usual treatment, but stays in bed. He is urged to eat as much as his appetite will permit of easily assimilable food, particularly such foods as rice, white bread, zwieback, sweet fruits, peas puree, vegetable broths, fruit purees, fruit toast, fruit soup, egg-nog made with fruit juice or kumyss, buttermilk, kumyss, and perhaps some simple nut products, but no brandy or alcoholics of any sort. It is, in most cases, better to make the food consist almost wholly of fruits and light cereals, as these tax the digestive organs to the smallest extent possible and do not disturb the liver and kidneys.

Soon after the time for the evening dose the "tug of war" begins. The patient should be encouraged to drink freely of fruit juices, hot lemonade, apple juice (not cider), grape juice, and similar preparations. He may eat as freely as he likes of apples and other fresh fruit, taking care to masticate well. He should be given a fomentation to the spine, a wet towel should be wrapped about his trunk, covered with warm, dry flannel, and great care should be taken to keep his arms and legs warm by vigorous rubbing and warm wrapping. Rubber bags filled with hot water may, if necessary, be placed about the feet and legs. He should be encouraged to remain as quiet as possible, and should be cheered with the thought that, while he may suffer some inconvenience for a few hours, the struggle will be over by nine or ten o'clock the following morning, which will be found to be true almost universally, and in many instances some hours sooner.

By nine or ten o'clock in the afternoon the patient is likely to become very nervous. This nervousness may be relieved by a prolonged wet-sheet pack or a neutral bath. The temperature of the neutral bath should be from 92° to 96°. The wet-sheet pack should be managed in such a way that while the patient warms up well he will not be overheated so as to produce perspiration. Care should be taken to keep the head cool in the pack. For full directions respecting the pack the reader is referred to the author's work on hydrotherapy.*

The calming effect of the neutral bath and the wet-sheet pack is in many cases simply marvelous, and in nearly every case very marked results are obtained. The patient may remain in the bath or the pack from an hour and a half to two hours. Often a little sleep is obtained. Sometimes the patient will sleep soundly for an hour or two if the bath is managed in such a way as to make him comfortable. Care should be taken not to overheat the bath nor to make the temperature so low as to produce the slightest degree of chilliness. The patient may be rubbed, with advantage, in the bath, especially if he feels slightly inclined to chilliness. The temperature should never be higher than 97°, nor lower than 92°; 94° to 96° is about the average temperature required. The exact regulation of the temperature is a matter of the highest importance. Either the bath or the pack may be repeated several times during the twelve hours following the complete withdrawal of the drug. No harm will result if the patient is kept in the bath or pack continuously for eight to ten hours. Water at a neutral temperature is not depressing. Very hot baths and very cold baths are exhausting, but the neutral bath produces sedative effects without exhaustion by excluding the irritating effects of external stimuli, and by obtunding the nerve-endings of the skin through the inhibition of water.

When not in the bath or pack, the patient should receive almost constantly attentions of some other sort, such as rubbing the head, rubbing the arms or the legs, massage of the back, alternate applications of hot and cold compress to the back, or alternate sponging of the back. These manipulations serve not only to occupy the patient's mind and divert his attention from his sufferings, and thus relieve the tedium of the ordeal through which he is passing, but also maintain an active circulation in the skin and so lessen the congestion of the

*Rational Hydrotherapy. F. A. Davis & Co., Philadelphia, Pa.

nerve-centers and the important viscera. The general circulation of the blood is assisted, and thus the heart is relieved and evidences of cardiac failure do not appear. If, however, there are symptoms of this sort, relief is very promptly obtained by the application of the ice-bag or a cold compress over the heart, and by alternate applications to the spine as follows: a very hot fomentation is applied for one minute; it is then removed and the spine, from the base of the brain down to the lumbar region, is rapidly rubbed for fifteen to twenty seconds with a piece of ice placed upon the bare skin; the fomentation is then re-applied for one minute, and followed by the cold, repeating six to ten times.

Applications of this sort have an excellent effect in toning the heart, while at the same time lessening the nervous irritability.

An ice-bag applied to the back of the neck exerts an excellent tonic effect upon the heart.

Troublesome looseness of the bowels requires a large hot enema followed by cold compresses applied to the abdomen, and changed every five to ten minutes, or as soon as the compress is perceptibly warm. A hot enema should be administered after each movement. The patient should be kept in bed, if possible, which not only facilitates treatment, but also saves the patient's strength, lessens the labor of the heart, and diminishes portal congestion. Very great exhaustion requires frequent rubbing of the limbs with the hands dipped in cold water, or with a wet friction-mitt. Each limb should be rubbed in this way until it is red, and it should be then wrapped in warm flannels, and the other limb treated in like manner.

It is very rare indeed that a patient treated in this way will not be quite relieved of the extreme craving and nervousness which appear after the total withdrawal of the drug, within ten to twelve hours. He will be left quite weak, of course, but will be relieved of the extreme nervousness, and able to rest quietly in bed. The alternate applications to the spine, above referred to, the cold-towel rub, or the cold-mitten friction should be employed every two or three hours for a few days, or at least three times daily.

The patient should be fed chiefly on liquid foods, especially fruit juices, toasted bread and granose, stewed fruits, ripe fruits in season, vegetable broths, buttermilk or kumyss, and boiled rice. If the quantity of food taken at the meal is small and chiefly liquid, the patient should be fed four times a day.

For a few days the patient is likely to suffer from insomnia. The wet-sheet pack and the neutral bath may be relied upon for relieving this condition in by far the great majority of cases. During the first night or two the patient may be allowed to sleep in a bath or a pack. Generally, however, the application of the pack for an hour or an hour and a half will be sufficient to bring the patient into a condition favorable for sound and natural sleep without drugs of any sort. I rarely ever find it necessary to resort to hypnotics of any kind, and when I do so I usually regret that I have done so. I find that the patient's sufferings are only postponed and thus prolonged by this means.

In some instances the neutral douche is preferable to the wet-sheet pack or the neutral bath. The douche is administered at a temperature of 92° to 94°, and with sufficient force to redden the skin; it accomplishes the same results as the neutral bath, but in a much shorter time, the duration required being three to four minutes.

The general nervous weakness which follows the withdrawal of the drug in these cases may be successfully combated by cold rubbing three or four time a day, and especially by the cold douche to the back. A cold percussion douche is preferable to the ordinary jet douche. The patient should be thoroughly warmed before the application is made, either by a very short electric-light bath or some other hot bath of brief duration, or by dry friction of the whole surface of the skin.

Very delicate patients who do not well endure general cold applications must be carefully trained by a graduated course of treatment, beginning with the cold wet-hand rub, and advancing by regular stages to the cold friction, the cold-towel rub, the wet-sheet rub, the shallow bath, the rubbing wet sheet, and finally the cold douche or shower bath.

Such a course of training may require several weeks, even two or three months; but it is essential, as a means of building up the patient's vital resistance and fortifying him against relapse. The effect of such a course of treatment will be to improve the patient's digestion and all his metabolic processes; his leathery skin will become clear, his countenance fresh, his cheeks rosy, his eyes bright, the muscles will become elastic and enduring, his appetite will improve, oxidation will be increased, uric acid will diminish, and the processes of the body will gradually approximate the physiological state.

These promises are not based upon theory, but are constantly verified in practice at the Battle Creek Sanitarium and its more than

seventy branch establishments in different parts of the world where these methods are in daily use. The manual Swedish movements, massage, graduated gymnastics, especially out-of-door exercise, the sun bath, the out-of-door exposure of the body to the air and light in the outdoor gymnasium, the swimming bath, the sand bath—all these and other measures whereby the body may be hardened and the constitution built up in natural and physiological ways are essential for the health-training of the victim of drug addiction, so that he may be made a normal man, and thus be prepared to resist successfully the evil tendencies which he may have acquired as the result of an unnatural life, or may suffer because of unfortunate hereditary entailment.

The treatment of chronic alcoholism, the opium habit, the tobacco habit, addiction to tea, coffee, chloral, ether, and other drugs, rests upon essentially the same principles. Alcoholism and the cocaine habit present practically the same problems as the different forms of opium addiction. The tobacco, tea, coffee, and other drug habits are easily overcome, provided the patient gives sympathetic co-operation.

The regimen above outlined, and a simple course of sweating baths, followed by tonic cold applications, are the only measures required to cure a tea-toper or the most inveterate tobacco-user. While some of the ideas presented in this paper may seem to be radically opposed to prevailing notions, I trust that a careful study will suffice to show that they rest upon a physiological basis, and I know, from my own experience, that a practical application of the methods suggested will be sufficient to persuade the most skeptical of the practical value of the procedures described.

Battle Creek, Mich.

EXOPHTHALMIC GOITRE.*

BY J. J. RODMAN, M. D.

Graves' disease is characterized by three prominent symptoms, rapid action of the heart, enlargement of the thyroid gland, and prominence of the eyeballs. In addition to these, there is usually found a decided nervous irritation, with more or less hysteria, decided action of the skin, and frequently anemia. The heart symptom is invariably prominent. Rarely one of the others may be absent, but a diagnosis would not be made if both were absent.

Heredity seems to be a predisposing cause in some cases. Of forty cases collected in fifteen familes, Oliver says: "Heredity was concluded to be the predisposing cause in all the cases." Osler says: "It is very possibly caused by the disturbed function of the thyroid gland." McLane Hamilton thinks it is a disease of the sympathetic nervous system.

The cause of the disease is not known, the reason for which can be readily understood, for on post-mortem examinations very rarely are lesions found, and when found they are not sufficient to account for all the symptoms. As a rule the patients are females, though some male cases have been reported. Hamilton says: "The subjects of this disease are almost without exception females." His cases were all females. Dr. Beattie reports twenty-two cases at the Royal Infirmary at Newcastle-upon-Tyne, of which nineteen were females and three males, a ratio of females to males of six to one.

The youngest patient spoken of in the literature I have read was a woman aged seventeen. Most cases occur in women between twenty and thirty-eight. Three cases are reported in men whose ages ranged from thirty-three to forty-eight. Hamilton's cases ranged from thirty to fifty.

Anemia seems to have a causative relation to the disease. One patient I have treated had valvular lesion of the heart long before the symptoms of this complaint developed. Of the three cardinal symptoms, that of the heart is probably the first developed in most cases, though according to my observations that is preceded by nervous irritability, or in common parlance nervousness. One patient could not remember when she was not nervous. The heart-beats may be

*Read before the Daviess County Medical Society, 1903.

from 100 to 150, and often the intensity of the beat is more forcible than normal, which adds much to the patient's discomfort. Auscultation does not always reveal abnormalities. Occasionally a systolic souffle is heard. The extraordinarily strong pulsation in the carotids, which is very conspicuous and easily felt, is in remarkable contrast to the smallness of the pulse-wave in the radial artery. In slow developing cases, which is the rule, the patient for a long time suffers from vague depression, irritability, palpitation, shortness of breath, and fatigue after slight exertion. The enlargement of the thyroid gland is, as a rule, the second of the three cardinal symptoms to develop. It is symmetrical and rarely very great, seldom being sufficient to interfere with respiration. A peculiar thrill is felt on placing the hand over the thyroid gland, due to the enlarged and engorged blood-vessels. The exophthalmos, which is probably always bilateral, differs in degree in different cases. In the majority, however, it is so marked that the protruding eyeballs can not be completely covered by the lids during sleep. This gives to the patient an appearance which to laymen is most peculiar and repulsive, and is still more aggravated if the upper lid does not follow the downward motion of the ball and thus allows a zone of the sclerotic to become visible above the cornea. The only ophthalmoscopically characteristic sign is the spontaneous pulsation of the retinal vessels, discovered by O'Becker. With this exception there are no changes in the fundus, and eyesight, accommodation, and pupils are normal. The skin is usually moist, and free perspiration is easily excited. Dyspnea, especially on even slight exertion, is a frequent symptom.

Acute and chronic forms may be recognized. In the acute form the disease may develop with great rapidity. In a patient of J. H. Lloyds, of Philadelphia, a woman aged thirty-nine, who had been considered perfectly healthy, but whose friends had noticed that for some time her eyes looked rather large, was suddenly seized with intense vomiting and diarrhea, rapid action of the heart, and great throbbing of the arteries. The eyes were prominent and staring, and the thyroid gland was found much enlarged and soft. The gastro-intestinal symptoms continued, the pulse became more rapid, the vomiting was incessant, and the patient died on the third day of her illness. Only the abdominal and thoracic organs could be examined, and no changes were found. Two rapidly fatal cases occurred in the Philadelphia hospital, one of which had marked cerebral symptoms.

Trousseau reports a case where the three symptoms developed in one night, as the result of excessive emotion. Oliver speaks of a young girl, under the emotion consequent upon the rupture of a love attachment, who suddenly developed all the symptoms of the disease, and died within four weeks of its commencement. But the disease is more often chronic, the symptoms coming on gradually. The woman is usually nervous for a long time, which increases with time; she becomes irritable and debilitated, unfit for exertion, palpitation begins. She suffers from dyspnea, her eyes become prominent, and the thyroid gland begins to enlarge; she becomes a chronic invalid. At this time, if not before, she consults a physician on account of difficulty of breathing, or palpitation, one or both. The case is at once diagnosed as Graves' disease, for in most cases the diagnosis is readily made. But what is he going to do? No treatment promises much. Oliver says: "Belladonna sometimes gives good results; probably the best results have followed galvanization of the cervical sympathetic, the negative pole being applied to the cervical ganglia on each side alternately."

Osler declares: "Medicinal measures are notoriously uncertain. The combination of digitalis and iron may be tried, and when there is anemia often does good. The tincture of strophanthus will sometimes reduce the rapidity of the heart's action. Ergot is warmly recommended by some writers. Belladonna gives relief occasionally. No measures are so successful as rest in bed with an ice-bag or Leiter's tube applied occasionally over the heart, or over the lower part of the neck and manubrium sterni. Electricity has been much lauded, and instances of cure have been reported. In many cases temporary improvement certainly follows the use of the galvanic current, the cathode being placed at the back of the neck and the anode along the course of the sympathetic or over the heart."

Hirt states: "The treatment in most instances is not attended with much success. Iron and quinine are the medicines generally used, but little is accomplished by them. The same must be said of the iodide and bromide of potash. More may be expected from hydrotherapy. The best success is obtained, according to my own observation, from systematic galvanic treatment. The cathode is applied to the angle of the lower jaw, while the anode is held at the lower cervical vertebræ (on the opposite side). The current should be weak and only applied for a short time, from a minute to a minute and a half.

Hamilton says: "A variety of remedial agents have been used, and those which have promised the greatest measure of success are ergot, quinine and iron, and galvanism. I have used galvanism with good effect, but rely almost entirely upon Gardiner's hydroiodic acid, with which I have cured three cases of advanced and serious goitre. The equalization of blood pressure should be aimed at." Bartholow recommends the external application of the ointment of the red oxide of mercury and the use of iodine.

Mrs. O., aged forty-four, called at my office on August 6, 1901, and gave something of the following history: Had been nervous all her life. Had kidney trouble when a child. Feet began to swell last February. Menses irregular, appearing once in six weeks, and then the flow is scant. Bowels regular, appetite good, sleeps well. Had been under the care of a physician for three years. Just returned from Dawson Springs, where she had gone at the suggestion of her physician. Pulse 96; respiration 30. Slight edema of face and more decided of abdomen, feet, and legs. Heart beat intermittent, loud murmur in place of first sound. Dilatation with partial compensatory hypertrophy. Eyes very prominent; thyroid gland slightly enlarged. This patient was not dissatisfied with her physician, but she had been told by several friends that electricity would do her good, and she came to me to try it.

As we have seen above, every author quoted speaks favorably of galvanism, but no one mentions the static current. I had at the Illinois Electrotherapeutic School seen a patient treated and benefited with galvanism, but my galvanic battery was not arranged and would not be for some time. Neiswanger says: "Give static breeze daily to increase condition of nerves. The disease is of nervous origin and static electricity does its best work through central nervous channels."

Monell says: "As exophthalmic goitre generally occurs in those who are nervous or hysterical and thus aggravates these neurotic states, derangement of nutrition and functions is the rule. One of the main things to do is to relieve the terrible nervous condition. For this purpose the chief resource is the static apparatus."

I followed his advice and used static electricity, not the head-breeze he recommended, but positive insulation. I gave a treatment of fifteen minutes every alternate day, giving twelve treatments in August, fourteen in September; she improved greatly. All symptoms were ameliorated, dropsical effusion all gone. After that the treatments

were not so frequent; she got nine during October, seven in November, and three in December. During 1902, treatments, all the same, were two in February, two in March, eight in April, five in May, and six in September, making sixty-eight treatments of fifteen minutes each from August 6, 1901, to September 13, 1902, a little over thirteen months. From then till now she has enjoyed good health, something she has not done for years.

As to medicine, she took very little; a few times she took digitalis for a short time, sometimes strychnine and iron. When she had dropsy I gave her bicarbonate and acetate potash. I have heard of no other case being treated in this way, and certainly I should have used galvanism if it had been available in the beginning. But I always let well enough alone, and as she was improving when I got my galvanic current in order, I did not see cause to use it.

The outcome surely warrants a further trial of the treatment. I have had a second patient, who did well under the treatment for a time, but she lives at a distance, and the weather has been such that it was difficult for her to come to my office; she has taken sixteen treatments in a little more than two months' time. Her goitre was quite prominent and caused her much anxiety; in fact, she came especially to have the goitre removed. In her case I employed cataphoresis, using dessicated suprarenal gland at first, but later a solution adrenalin chloride 1–1000, at the same time giving the static treatment.

After the first few treatments the patient slept well, which she had not done for a long time. The thyroid enlargement was nearly all gone, and her general health much improved, when she was at the office last.

Owensboro, Ky.

CRETINISM, WITH REPORT OF CASE.*

BY FRANK M. BEARD, M. D.

This disease was first brought to the attention of the medical profession a quarter of a century ago. The conditions that favor its development are not as yet understood. It is an absence of the thyroid gland or a suspension of its functions. As a rule it is congenital. The child getting its nourishment from its mother up to birth shows no symptoms at that time, but it usually develops within the first year. This gland unquestionably furnishes something that is very essential to normal metabolism. Why and how that secretion plays so important a part in tissue change can only be determined negatively, where we have an absence of it, and then this condition arises, which you have all doubtless observed. I know of no better method of describing this disease than to incorporate the following case:

Saw the patient, a little girl, in 1897; she was then about twenty-seven months old. At birth she weighed twelve and a half pounds. The labor was very tedious and difficult, but otherwise was a normal birth of a normally large child, no forceps being used. She had a dark suit of hair, and seemed for a month to be a healthy baby. The mother first observed, about the beginning of the third month, that she did not notice and had difficulty in swallowing. She nursed the baby and gave her an abundance of nourishment. As the infant became older she began to feed her, and would often masticate the food and give it her and find it in her mouth the next morning. This condition of things continued for two years or more, up to the time I saw her. She then weighed only about sixteen pounds and was about as tall as at her birth. The family history was good. Father and mother are healthy, except that the mother is of slightly neurotic temperament. Paternal grandfather and grandmother died at a ripe old age; maternal grandfather and grandmother living and in good health for their ages. No history of goitre. The child's skin was chalky and dry and presented a dead appearance, there being no evidence of any cutaneous circulation whatever. The scalp, devoid of hair, was crusty; large, subcutaneous thickenings were distributed pretty generally over the surface. The fingers and toes were short and stumpy, the abdomen very prominent, the facial

*Read before the Kentucky State Medical Society, April, 1903.

expression very heavy, the forehead low, the eyes wide apart, the nose flattened, the lips thick and large; the tongue was slightly protruding from the mouth; the cheeks were baggy; no signs of teeth; the mucous membrane of the mouth was pale, the expression of the eyes was very dull. The child made no effort to talk, could not even sit alone; the features were coarse, the pulse very slow, the temperature subnormal, the bowels always constipated (requiring active purgatives to move them at all); the movements of the child were slow and sluggish, and she presented as a whole a marked physical and mental torpor, as if the very essence of life had been denied her. What a striking example this is, as compared to a healthy child twenty-seven months old, that can talk, walk, has all its teeth, bright eyes, clear skin, rosy mucous membrane, normal in size, with a good expression, a bright and playful manner, running about the room, knowing its life to be the very sunshine of the home!

The diagnosis at first might seem difficult, but the facial expression, prominent abdomen, subcutaneous fatty deposits, the subnormal temperature and slow pulse, made it very easy.

The Treatment. This patient had been treated for two years by tonics, etc., and certainly there was not the slightest improvement, either mentally or physically. I began treatment with the thyroid extract, using one half grain powders three times a day, of the dessicated thyroid made by Parke, Davis & Co. In two weeks' time the veins began to show; the skin, which before had looked as if dead, began to get a little rosy, and at the end of the first month presented an altogether different appearance. The expression of the eyes was changed; the whole aspect, both physical and mental, began to take on a new hue, and the entire system seemed to have found its long-lost life-essence. The crusty scalp began to clear and the hair on the head to come back, the fatty deposits began to disappear, teething commenced; there was a very marked improvement in every respect both physically and mentally. She thus continued to improve, taking the same dose, for about a year, and then weighed thirty-two pounds and could talk and walk. At the beginning of the second year of treatment the medicine was gradually increased. She contracted rubeola in February, 1898, had pertussis and epidemic parotitis the same year, scarlatina and pneumonia in 1899, pneumonia in 1900 and again in 1901, and in March last, 1903, had varicella. On several occasions when the thyroid was discontinued she would again lapse into a torpid

condition, that would only disappear when treatment was renewed. She is now eight years old can read and write, play on the piano, goes to church, can play any tune she hears, and is in every respect a normal child of eight years. She is three feet seven and a half inches in height, about the usual weight for her age, and is now taking five-grain tablets of the thyroids twice a day.

SHELBYVILLE, KY.

Reports of Societies.

LOUISVILLE CLINICAL SOCIETY.*

The Society met with Dr. M. F. Coomes on Tuesday, May 26, 1903, Dr. John R. Wathen in the Chair.

Report of Cases. Dr. Ewing Marshall: A man in the order of his duties was called upon to cut a nut and bolt from a coal chute, the man on the other side having cut one loose. He was holding the chisel in his left hand and it cut away easy and the iron flew up and struck the end of the third metacarpal bone, knocking off the articulation without cutting the skin or injuring the tendons. A piece of the articulation was displaced into the sulcus between the second and third metacarpal bones. When I reached the man I found a roughness over this metacarpo-phalangeal joint and in feeling around I found this object, which could not be moved around. The man complained of something sticking him on pressure, and I decided it was a piece of the articulation and cut down upon it and removed it. I have never seen anything in the books which exactly corresponds to the case. It was entirely subcutaneous, the skin not even being broken.

The essay of the evening, "Phlyctenular Keratitis" was read by Martin F. Coomes, A. M., M. D., LL. D. [See page 5.]

Discussion. Dr. S. G. Dabney: I want to say first that phlyctenular keratitis is a misnomer, the mistake being as to the pathology. The Greek word from which phlyctenular is derived means a blister, and the supposition was that the small elevation contained watery material,

* Stenographically reported for this journal by Edgar Allen Forbes.

which it does not. I do not think the pathology is altogether obscure. The microscope has shown that the cause of these elevations is due to the accumulation of leucocytes and the cause of the ulceration which follows after the phlyctenule disappears is due to the destruction of the papilloma by the leucocytes. The popular synonyms for the disease are very good ones. The laity call it "scrofula of the eyes," and that tells the causation and gives the key to the treatment.

Dr. Coomes has rehearsed the usual symptoms. One of interest was not mentioned, the curious and violent sneezing that occurs when the eye is opened. We all see cases where that occurs when we put the child's head between our knees and pull the lids open.

Dr. Coomes might have laid more stress on the eczema, which is not only important as an associate trouble, but the cure of the attendant eczema has a very favorable effect upon the eye.

Photophobia is the most intense of all the symptoms, and Dr. Coomes' picture is not overdrawn. These patients are generally pallid, anemic, with enlarged glands, eczema, and mouth-breathing. These children will bury their heads in the pillow and the intense spasm is difficult to relieve. Cocaine should not be used too often, because it depresses the nutrition of the cornea.

Among the underlying factors to be considered I should mention first the treatment of the constitutional condition of the child. Hygiene is as important as drugs and less easy to obtain. They should be kept in the open air and given a bath of preferably sea-salt and rubbed with a coarse towel. They should not be too warmly clothed and should be kept out-doors. Their diet is of great importance. We men who work on the mucous membranes of the upper air passages are likely to be considered cranks on the subject, but such things as candy, pastry, etc., are exceedingly injurious to children.

Very frequently these eye cases are associated with adenoid growths in the naso-pharynx and tonsils. In the clinic at Hamburg, the duration of the phlyctenule was compared with that under the former method of treatment, when no attention was paid to these, and it was about one half. Obstructions in the upper air passages depress the general health, and in this way have great influence on the disease. One of the most annoying features is the tendency to relapses.

The internal remedies mentioned by the essayist are those in general use. In the early stages free purgation with calomel is very valuable. I do not get much effect from tonic doses of mercury. One of our col-

leagues adopted the practice of keeping them for months on mercury, with no benefit except from the tonic effect. Syphilis plays no part in the disease except in depressing the general condition. It does not produce the phlyctenular form.

As to eserine and atropia, there are cases which hang on indefinitely under atropine and improve rapidly under eserine. The cases of miliary phlyctenules near the corneal margin are the kind that are most benefited by eserine. In the rare cases where perforation is threatened in or near the sclero-corneal junction, eserine should be used. If near the center of the cornea, use atropine.

I differ from the essayist with regard to the use of atropine. I believe it is of the greatest assistance in the average case. It dilates the pupil, it is true, and we know these children should be kept in the open air; but the photophobia can be controlled by the use of smoked glasses. On the other hand, it removes the danger of involvement of the iris and allays the pain. This pain is so intense that it keeps the child awake even at night and the atropine acts as a sedative. It should not be used except in the acute stages. The yellow oxide of mercury and calomel are excellent remedies when the acute symptoms subside.

Dr. P. F. Barbour: I should like to express my appreciation of the paper. I am not in a position to criticise or combat or advise as to the treatment of this disease. I always turn these cases over to the specialists. One phase appealed to me, and that was the connection between these phlyctenules and scrofula. There has been a great tendency in recent years, especially in the East, to maintain that there is no such thing as struma, as it used to be thought, but that they are simply tubercular troubles of the glands, and such conditions as phlyctenular keratitis are simply the results. I myself believe that there is such a thing as derangement of the lymphatic system, and struma is a good name to express it. Glandular troubles in the neck do well under the use of the iodides. We see these children with thick skins, muddy complexions, thick nose, etc., who have no evidence of tuberculosis and they are predisposed to glandular enlargements, but these cases I believe are not primarily tubercular.

Dr. Ewing Marshall: I have enjoyed the paper very much. I rise to say that I have not seen any of these cases for a good many years, not since I gave up the dispensary clinic. Then I saw a good many. I gave that up in 1892. We used always to give cod-liver oil and arsenic, with the syrup of the iodide of iron.

One other point that we dwelt upon was having a bowl of cold water and sticking the child's head in to make it open its eyes.

Dr. Carl Weidner : I think one of the points in the treatment should be attention to the child's nose. By scratching or rubbing the nose, they frequently set up a secondary eczema. The cases I have seen have been principally poor children and orphans, and many of them come under the head of scrofulous children. I think the eye trouble is often kept up by this rubbing of the nose, behind the ears, and elsewhere, and if we would give attention to this it would give them a better chance to get well. My treatment has already been outlined. The yellow oxide of mercury seems to be a standard ointment.

Dr. T. P. Satterwhite : I have had considerable experience with children in dispensary practice and in institutions under my care in the last few years, and have seen a great deal of this condition of the eye. When they become very serious I call in a specialist. I have always been taught to believe that the disease is due to a disorder of the lymphatic system. Of course I have regulated the diet, as Dr. Dabney suggested, in regard to the use of sweets especially. I have used various tonics. With regard to the photophobia, many of you will remember Dr. Cheatham's father, and I got a practice from him which I have used ever since and in a very large proportion of cases it acts like a charm. I refer to the use of quinine for the photophobia. I have seen it relieve it in a very short while.

So far as local applications are concerned, I do not believe much stress should be placed upon them. I do use a solution of borated soda dropped into the eye and I bathe them frequently in cold water, but tonics and regulation of diet are what I rely upon.

But I rose principally to mention the use of the quinine for the photophobia.

Dr. J. W. Irwin : This is a condition which I never treat myself, but I see a great deal of local applications to the eye. Dr. Coomes has given us the modern story of the treatment, which I believe is up to date. But he failed to mention an important matter, the malarial cause of this disease. In parts of the country where malaria is prevalent you will find a great many more cases of this kind, and in such case the phlyctenules are due to malaria and quinine acts almost as a specific. I have had extensive experience in Evansville and surrounding districts. I have had many children brought to me from parts where the river overflows its banks and the loam settles and mosquitoes abound. These

children were very subject to disorders of the eye. I found that many of these children were strumous, in the general sense of that word. They were children from the hovels of the poor, poorly nourished ; but they were not any more subject to this disorder than children from other malarial districts. It was my practice to give to all persons large doses of quinine, and since coming here I have seen several cases of phlyctenular keratitis that would not yield to ordinary methods of treatment but were cured by ten grains of quinine every night for thirty days. In almost every case of recovery that I have seen there has been a scar left. I found that in the constitutional treatment the emulsion of cod-liver oil was very useful in those cases, along with other hygienic methods. The iodide of iron also comes into play.

When I was a medical student I had the pleasure of attending Will's Hospital in Philadelphia, where I saw a great many children suffering with disorders of the eye. I remember a favorite application of that brilliant operator, Dr. Leavitt. He would come into the clinical room shaking like a man with the palsy, yet after fifteen minutes in the room he would do an operation for cataract. I have seen him do all kinds of operations when you would have thought it impossible on account of the tremor, but the moment his hand touched the patient it was as steady as a rock. His favorite ointment was the sulphate of soda and calomel, about twenty or thirty grains to the half ounce of simple cerate. This was before the day of the coal-tar preparations. This was applied to the eye and almost perfect results followed, except for a little milky spot left.

I have had no experience myself in late years. I only treat them constitutionally and confine myself in these strumous cases to attention to the food, change of air, and other hygienic methods. I think residence by the sea has an alterative effect and aids in restoration. I think next to that is a preparation of cod-liver oil and hypophosphites.

Dr. J. M. Morris : I wish to express my appreciation of the paper. I do not know very much about the subject, but I have a case of typhoid fever on hand now, a lady about seventy years of age, in which this trouble is developing. I took it to be due to her enfeebled condition, and after I had seen it for a day or two I turned it over to a specialist. She has gone ahead under treatment for about three weeks and is almost well now. I mention this case because it has been mentioned that this condition occurs chiefly in infants. It sometimes develops in older persons as well.

Dr. M. F. Coomes: I thank the gentlemen for what they have said and for aiding me in completing this paper. Children in these malarial districts have to have large doses of quinine, and the photophobia would be naturally lessened by its use. I am satisfied we used to have a great deal more of this condition when circumstances were worse. I can not say that I have ever used quinine specifically for photophobia, but only for malarial complications. In those cases quinine is the thing.

Reports of Cases. Dr. T. P. Satterwhite: Some four weeks ago I was called to see a young man, apparently in good condition. He had his foot wrapped up and had been under the care of a physician whom I will not name. The ends of his toes were dead, cold, blue, and that part of the foot as far as the instep was blue and swollen. He was in great pain, and said it came on from a scratch; from what I could gather I formed the opinion that it was a case of erysipelas and the swelling of the foot had cut off the circulation and caused the death of the toes. As it was late in the afternoon, I at once suggested that he go to St. Anthony's Hospital in the morning and I would wait on him there. I met him there and called in Dr. Samuels to see the case. This was the left foot. The pulse of the left radial could not be felt and the pulsation of the brachial artery in the same arm could not be felt. The right leg up to the thigh was a third larger than was natural. We could not discover any edematous condition. There was no sign of ascites or of any enlargement of the liver or anything of the kind, but we gathered the information that he was a barkeeper and in years past had a severe case of syphilis, from which he had recovered, so far as he knew.

This gangrenous condition has continued and the leg is now dead up to the ankle; he suffers a great deal and the right leg is swollen but without any indication of gangrene. There is no pain in the right leg. His age is about 28 years. I had to go to New York, so I turned the case over to Dr. Samuels. When I came back his wife asked me to see him and take charge again. I found him in a hopeless condition. He had swelling of the abdomen and ascites. He is now under Dr. Buschemeyer and has probably been tapped. I diagnosed the case as cirrhosis due to whisky and the syphilitic condition. There is no sugar in the urine, but much albumen and granular casts.

Dr. Carl Weidner: From this history I can not say much. Syphilis will cause endo-arteritis, but not to the extent that it affects the ex-

tremities. My first thought was that it might be a vaso-motor affection, but since the other phenomena appeared it is nothing more than guess-work. It is hard to explain why he should have had gangrene of one leg unless there was a thrombotic condition, favored by the syphilis or the infectious condition. I think we will have to wait until the post-mortem.

Dr. J. W. Irwin: It is an interesting case. We know that the dumping-ground of the portal circulation is in the liver and if this is obstructed it must back up somewhere. So we find excessive pressure in one leg. I think he was suffering from phlebitis and it has ended in ascites. We would naturally expect albumen and some casts, because we have a nephritis associated with it.

Dr. G. B. Young: My own impression would be strongly that syphilis is at the bottom of it. I see a great deal of syphilis, and a great deal of it has been imperfectly treated or not at all. I have about adopted the practice, whenever I find a man with a mysterious ailment with a suspicious history, of calling it syphilis. Dr. Weidner and I have had occasion recently to know what a syphilitic liver will do in producing ascites and edema elsewhere. But a man may go to the verge of the grave and then take a notion to get well. I am under the impression that the man has syphilis of the liver.

Society Notes.

OHIO VALLEY MEDICAL ASSOCIATION.

The Ohio Valley Medical Association met, June 11th and 12th, at Henderson, Ky. Important legislation was transacted, extending the bounds of this Association over the four States bordering on the Ohio River, viz., Ohio, Indiana, Illinois, and Kentucky, and the meetings from now on are to be held annually in the fall.

This Association is rapidly growing, and has members not only scattered over the territory within the bounds of the four States, but Tennessee and Missouri as well, and with the present legislation extending its bounds so as to encourage growth, it is destined at no distant day to be one of the important medical societies in the country.

Evansville, Ind., was selected as the next place of meeting, and the Association hopes to make this the best meeting of the five years of its

history. No date was set for the fall meeting, but it will be determined by the committee of arrangements so as not to conflict with the Mississippi Valley or Southern Surgical and Gynecological Association dates for meetings. Benjamin L. W. Floyd, of Evansville, Ind., was elected President; W. J. Stone, of Henderson, Ky., Vice-President, and A. J. Lieber, of Henderson, Ky., was continued as Secretary and Treasurer.

DAVIESS COUNTY MEDICAL SOCIETY.

The Daviess County Medical Society held its regular quarterly meeting with Dr. J. W. Ellis, at Masonville, on the 16th of June. Forty-two physicians were present.

Nine physicians made application for membership. Papers were read by Drs. T. H. Turner and J. J. Rodman. Dr. W. F. Stirman reported quite a number of cases of operation for appendicitis, all successful. Dr. Ellis makes a delightful host. At the noon hour, in a grove near by he and his lady friends treated us to a most sumptuous barbecued dinner. Harmony and good cheer were the ruling spirits of the day. J. J. RODMAN, *Secretary.*

INJURY TO THE EYES FROM IMPERFECT LIGHTING.—At a largely attended meeting of electrical engineers in Chicago, on May 26th, the subject of deficient electric lighting was discussed. It was shown that the rays from the powerful arc lights are not always properly distributed by globes or modified by shades. The injurious effects upon the eyes could be minimized by adopting improvements which have been made within the last few years, but for fancied economical reasons municipalities shun them.

There is one principle which ought always to be heeded, but which is not observed by every one who reads. As far as possible, the direct rays of light should be excluded from the eyes. Only the indirect or reflected light should enter the eyes, for example, from one's book. We know of specialists, even, who expose their eyes to the bright light of electric and gas lamps in their daily work, jeopardizing their retinas and inviting weak eyes for later years. We teach children to use light from one side or over the shoulder so as to preserve acute vision; then for the sake of consistency and the conservation of his own sight-power the physician should avoid the strain upon the eyes from direct, bright light.—*The Illinois Medical Bulletin.*

THE AMERICAN PRACTITIONER AND NEWS

"NEC TENUI PENNÂ."

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MEDICAL EDUCATION AND THE KENTUCKY STATE BOARD OF HEALTH.

At a regular meeting of the Kentucky State Board of Health, June 10th, the following preamble and resolutions were adopted:

"Whereas, in violation of published requirements, many low-grade schools offer private inducements to medical students for admission, reduced time of attendance upon lectures, scholarships and reduction of fees, to induce them to enter on the study of medicine to their own disadvantage, and contrary to the interests of humanity; be it

"Resolved, That the State Board of Health of Kentucky will not recognize as reputable any medical college which violates its published requirements for admission, tuition and the time of attendance at the annual sessions, which requirements must be definitely expressed. The college shall require of each applicant for matriculation evidence of good moral character and a certain showing that he is a graduate of a recognized Normal school, high school, academy or college of literature, science, or arts, or a certificate from a county superintendent of public instruction showing that he has passed a satisfactory examination in the following branches: In English composition, submitting a composition on some subject of general interest embracing not less than two hundred words, which shall be considered with reference to spelling, punctuation, thought and construction; in arithmetic, showing knowledge of decimal fractions, percentage and compound numbers; in algebra, simple equations; in Latin, first year of our ordinary Latin course; in physics, the elements of

mechanics, hydrostatics, hydraulics, heat, optics and acoustics; or, in default of such certificate, he shall be examined in the above-named subjects by the superintendent of schools in the city in which the college is located, and obtain and present his certificate.

"No college shall offer or accept scholarships, or any reduction in fees, except as provided for and required under State laws, or under the laws of endowed universities.

"No note accepted by any college in payment or part payment of fees, or any form of rebates, will be recognized as complying with the above requirements, and no student shall be given credit for attendance on lectures, or for examination for advanced standing, until all fees shall have been paid, nor shall the degree be conferred on any one under other conditions.

"Each student must have been in actual attendance for the full term of each of the four years required in the curriculum.

"Each applicant graduating on and after July 15, 1903, shall make affidavit of compliance with the above requirements for each and every year after July 15, 1903."

It must be remembered that these requirements are not adopted to govern any particular school, but apply with equal force to all schools in the United States, and are for the purpose of protecting the people of the State against incompetent physicians. It is a well-known fact that many low-grade schools violate their advertised requirements in many particulars, and especially in the amount of tuition collected from students, for the purpose of flooding this country with incompetent doctors; the Board, realizing this fact, has determined to do its duty in the premises.

The Board should be congratulated upon the excellence of the work it is doing, not only in the prevention of disease, but in the enforcement of rigid regulations governing medical colleges; and we can not believe that any reputable medical school can afford to persist in refusing to comply with these requirements.

It will be noted that the resolutions do not attempt to govern any school as to the amount that all students should be charged, but recognizes no school that does not specifically state the amount it will charge, and collect the amount advertised in its catalogue. It is certainly disreputable for any medical college to advertise a schedule of fees as high as high-grade schools, and then clandestinely, by letter and otherwise, offer to take students at any amount they are willing to pay, for by this means men are induced to study medicine who have no preparatory training, but little mental capacity, and can never become successful physicians.

Current Surgical and Medical Selections.

VAGINAL CESAREAN SECTION IN CANCER OF THE CERVIX WHEN DIAGNOSTICATED AT THE END OF PREGNANCY.—Dr. F. K. Veber (*Roussky Vratch*, December 14th) concludes as follows as regards the indication of Dührssen's vaginal Cesarean section in cases of cancer of the cervix diagnosticated at the end of pregnancy, basing his conclusions on the study of a series of cases which he reports: (1) In cases in which cancer of the cervix is diagnosticated at the end of pregnancy, in which the new growth is in the first stages of development, the pelvis not being contracted, and the soft parts yielding, a vaginal Cesarean section should be regarded as the operation of choice. (2) The fact that the child has reached its full development, at term, should not be regarded as a contraindication to the operation. (3) The nearer we are to the end of pregnancy, the more probability is there that the child will remain alive. (4) Bleeding from the veins cut at the amputation of the cervix is best arrested by simple pressure upon the venous trunks situated on either side of the uterus by means of a wad of gauze. (5) The resection of the lower part of the cervix should be as extensive as possible.—*New York Medical Journal.*

THE ACTION OF COCAINE ON INTESTINAL ABSORPTION.—Dr. Alfredo Baldacci and Dr. Guido Guidi, of Pisa (*Riforma Medica*, December 2d), call attention to the fact that no one has determined the action of cocaine, a true paralyzant of protoplasmic activity, on the absorption-powers of the intestines. They proceeded as follows in order to determine the action of cocaine on intestinal absorption: They isolated a loop of gut, tied it at the extremities with ligatures, and in its middle, so as to make two chambers of equal dimensions, and injected a solution of cocaine into one chamber and an indifferent fluid into the other. After a certain interval of time they introduced into each of these intestinal chambers the same amount and quality of an absorbable material, the presence of which could be recognized and the quantity of which could be estimated with comparative ease. Such materials are glucose, strychnine, etc., and fat. They then observed which of the two chambers absorbed the injected substance more quickly. Their experiments were performed on rabbits and dogs, and are given in full. They conclude that, while in some cases the differences between the power of absorption manifested by the cocanized and the normal tract of intestines were very slight, the results were sufficiently constant to warrant generalizations. It may be said that the application of a cocaine solution to the mucous membrane of an intestine impedes all the processes of absorption more or less markedly. It remains to be seen if by increasing the dose of the cocaine and the duration of its action, the absorption-power of the intestine can be completely abolished or suspended.

It must be noted, moreover, that the inhibition of absorption holds good for fatty substances as well as for soluble substances, like glucose, but the exact cause of this inhibition in the case of fats must be determined later. The general conclusion from these experiments is that the absorption-power of the intestines is not due to purely physical conditions, but to a specific activity on the part of the intestinal epithelium.—*Ibid.*

Foreign Bodies in the Esophagus.—Dr. M. S. Tcheremoukhine (*Chirurgia*, December) reports two cases of foreign bodies in the esophagus, and reviews the latest literature of the subject. He concludes as follows as regards the treatment of these cases: A foreign body in the esophagus is to be regarded as sometimes dangerous to life, and every such case should be regarded as a serious one. All foreign bodies should be removed from the esophagus in one way or another. If cautious attempts to extract it or to push it down into the stomach fail, the foreign body should be got at by esophagotomy, if located above the sixth or seventh dorsal vertebra, and by gastrotomy if below this point. If the body is of such a nature that attempts to push it down or to extract it would prove dangerous, as in the case of needles, pins, glass with sharp edges, etc., then esophagotomy should be resorted to without these preliminary attempts. The sooner the operation is performed after the body is swallowed, the more probability of success. The Roentgen rays are useful in locating the foreign bodies in the esophagus, and the best method is that of Roentgenoscopy, which at the same time enables us to push down a body and to observe its progress. The X-rays are also useful in determining the position of the body with reference to the operation to be chosen in removing it, and in diagnosticating the presence of a foreign body in cases with inexact histories.—*Ibid.*

Surgery of the Heart.—The suturing of wounds of the heart now occupies a recognized place in surgery. It is rarely, indeed, that a surgeon sees a wound of the heart in time to treat it, but sufficient cases are now on record to demonstrate that the heart may be sutured with comparative ease, and that the hemorrhage can be readily controlled. Dr. Harry M. Sherman, of San Francisco, has collected 34 cases of suture of the heart; of these five patients died on the table from hemorrhage or shock, and ten soon afterwards—six died from sepsis, but thirteen recovered. These results are very good. Silk sutures have been mainly used, generally interrupted. The ventricles were injured 32 times, and to these sutures are more easily applied than to the auricles. The best flap for exposing the heart contains the inner ends of the fourth and fifth ribs, which are divided and luxated from their sternal attachments, and the flap is turned inwards like a door. Sir Lauder Brunton, in view of some experiments which he has performed, has suggested that it might be possible to treat mitral stenosis by surgical methods. The experiments have up to the present not been carried very far, and therefore it is quite impossible to say whether it will ever be anything more than a suggestion.—*The Lancet.*

Special Notices.

Sanmetto in Prostatic Hypertrophy with Vesical Complications.—I have waited to express my opinion until I had a case in which I might apply the critical or crucial test to Sanmetto. Finally one of prostatic hypertrophy with serious vesical complications was presented, in which, having employed Sanmetto, both my patient and myself are much more than pleased with results. Henceforth Sanmetto goes into my armamentarium for all such and similar cases. J. Newton Smith, M. D., Bartow, Fla.

Owing to the great increase in the substitution of inferior and harmful remedies for those of well-known and proved value, we advise purchasers, for their protection, to insist on having Celerina, and not to accept anything that is offered as "just as good," or cheaper, which unscrupulous druggists continue to offer in order to make a few cents more. You know what you want, insist on having it; if he has not got it, go somewhere else, or get him to order it for you. We think this will explain to you the necessity of getting the genuine article in order to produce satisfactory results, for in some cases of failure it has been owing to the substitution of an inferior article, thus not only doing you no good, but even imperiling your life. But as this hydra-headed monster, like Banquo's ghost, "will not down" as long as dishonest men exist, the best way to check it is to purchase in original packages, and be sure that you get in it that form.

Obstetrical Practice.—In contrasting modern obstetrical practice with the methods formerly in vogue, one can not fail to be impressed with the greater care bestowed upon the parturient woman. This is shown by the scrupulous cleanliness and antiseptic precautions recommended in every modern text-book, as well as the earnest efforts made to relieve the pangs of childbirth. The latter point is one of great importance, since it is probable that women of the present generation, owing to various causes and especially to a less robust physique and a more sensitive nervous system, are less able to endure the pains connected with parturition. It is on this account that the labor pains are in many instances less effective and more intensely felt. Under these circumstances Hayden's Viburnum Compound becoms a real blessing to many parturient women. During the first stage it exerts a soothing effect, relieving nervousness and restlessness when given in doses of one dessert-spoonful, followed every half hour by a teaspoonful. In the second stage its action is that of a uterine tonic, increasing the efficiency of the pains, and here it may be given in teaspoonful doses whenever required for that purpose. In the third stage it satisfactorily replaces ergot, being equally efficient and devoid of its unpleasant sequelæ. One of the striking differences in the effects of ergot and Hayden's Viburnum Compound during the period of parturition is that while the former produces a continuous contraction of the uterus with scarcely any intervals between the pains, Hayden's Viburnum Compound simply reinforces the strength of the uterine contractions without otherwise changing their character. This enables it to be employed when ergot would be dangerous both to the mother and the child.

The Antikamnia Chemical Company, St. Louis, Mo., is an old and responsible concern, and any of their medicinal specialties may be depended upon to be just as represented. The latest additions to their list of preparations are "Antikamnia and Heroin Tablets" and "Laxative Antikamnia and Quinine Tablets." Send to them for samples, mentioning American Practitioner and News.

THE

AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

TIMELY OPERATION IN PRIMARY APPENDICITIS.*

BY WILLIAM H. WATHEN, A. M., M. D., LL. D.

Professor of Obstetrics, Abdominal Surgery, and Gynecology in the Kentucky School of Medicine; Fellow of the American Gynecological Society; Gynecologist to the Kentucky School of Medicine Hospital and the Louisville City Hospital, etc., Louisville, Kentucky.

The question that I wish to emphasize is that every primary case of appendicitis should be operated upon timely—that is, before the disease has extended beyond the appendix, or complications have arisen—unless the condition of the patient is such that any serious operation is positively contraindicated.

The appendix enters the cecum at the bottom of the posterior longitudinal muscular band of the ascending colon and just below and behind the ileo-cecal union. It is usually composed of four coats, serous, muscular, submucous, and mucous—the two inner coats containing numerous lymphoid cells in delicate retiform connective tissue, sometimes developed as in the Peyer's patches of the ileum, also solitary glands and glands of Lieberkühn. Thus will be seen the similarity of tissue in the appendix and the ileum, where we have the agminated glands composed of lymphoid tissue, situated in the bowel wall opposite the mesenteric attachment, and are larger and more abundant near the lower part of the ileum. The lymphoid tissue is better developed in young persons in both the ileum and the appendix, hence typhoid fever and appendicitis are relatively less frequent in old age. It is a clinical fact that appendicitis may result from typhoid infection

*Read before the Louisville Clinical Society, February 17, 1903. For discussion see page 63.

of the Peyer's glands, and that we may have in each disease ulceration, necrosis, or gangrene, with perforation. There is such an intimate lymphatic supply that it is possible the infection in typhoid fever may be directly conveyed to the appendix through these channels, or it may be conveyed through the ileo-cecal opening into the cecum and then enter the appendix. The appendix becomes relatively more frequently ulcerated and gangrenous and perforated than does the ileum in typhoid fever, because of relatively less abundant blood and nerve supply and an imperfect capacity for drainage, which may be increased by the hypertrophy of the lymphoid tissue. Each of the pathogenic germs causing appendicitis may be modified in its virulence by the environments, the same germ at one time causing a mild form of the disease and again a fatal form. The germs found in appendicitis are the streptococcus, the colon bacillus, the staphylococcus, and the lanceolatus, but these germs may be in the appendix and cause no pathologic condition, and only do so when some contributing cause impairs the normal resistance of the tissues, the germs then becoming pathogenic and destructive.

So long as the drainage of the appendix is not obstructed or prevented there will probably be no inflammation, or only a mild catarrhal variety; but when drainage is partially or wholly obstructed destructive processes may follow, demanding immediate attention, the germ often becoming so virulent as to require the removal of the appendix before the end of thirty-six hours, to prevent ulceration, necrosis, and gangrene, which may cause death with or without an operation. It is impossible to tell the degree of stricture of the appendix, or when conditions exist to make the operation dangerous or necessarily fatal, but we know that in these cases a timely operation may save the patient's life. It is true that we can not always positively diagnosticate appendicitis, but if the appendix is not diseased, an experienced surgeon will, with few exceptions, find a condition that requires surgical treatment, such as hernia caused by fibrous bands and adhesions, in omental rupture, in the opening of an adherent Meckel's diverticulum, or volvulus, intussusception, malignant ort ubercular disease of the ileo-cecal junction, obstructed ureter, suppuration of the kidney or its pelvis, enlarged gall-bladder, impacted gall stones in the ileo-cecal region, pyosalpinx, pelvic abscess, pancreatitis, etc., and if perchance absolute error of any diseased condition in diagnosis does rarely occur the patient will recover, and if the appendix is

removed will be rid of a structure that may become an offending remnant.

I therefore believe that every case of primary appendicitis should be operated upon if seen timely and there are no positive contra-indications showing great danger of performing any capital operation, presupposing that the operator is an experienced abdominal surgeon. If this principle is observed there should be practically no mortality, as is shown by the surgeons here and abroad who have done the most of this work—the mortality being in neglected cases, where the danger to vital parts was so great that death was inevitable by any method of treatment.

It is true that many cases will apparently recover from appendicitis, but the disease will often recur, because the appendix may become strictured or diaphragmed so as to interfere with or obstruct drainage, which has been positively proven by dilating removed appendices with alcohol and putting them in alcohol. The condition is in a degree similar to a strictured urethra, and we know the results in such cases when neglected or not properly treated. It may be contended that it is best to operate between the attacks, and the mortality will then be lower. I do not believe this to be true where we operate timely during the first attack, and I will ask how are we to know that any patient will recover from an attack so as to be operated upon in the interval? The profession will be forced by results to recognize the fact that appendicitis is not cured by medical treatment; surgery is the only rational treatment. In the acute stage purgation is contraindicated; remove the contents of the stomach by the pump, give no food or liquid, and if possible avoid an opiate. The lower bowel may be unloaded by an enema. There have been many disastrous results caused by purgation and food, and there is no disease in which excessive peristalsis is more contraindicated, but an opiate so modifies the symptoms as to mislead us as to any correct idea of the actual condition, and while it may occasionally be indicated it is not directly curative and should, if possible, be avoided. While most of my cases of appendicitis operated on with gangrene, necrosis, perforation or suppuration recover, the recovery is protracted and adhesions are left, but my cases operated upon timely, before these conditions appear, usually recover without complications. While the prognosis is less encouraging in operations between the attacks, it is better to operate at this time than to operate during a recurrent attack, for we can not antici-

pate conditions that may then have developed to complicate the operation. As nearly all cases of appendicitis are first seen by the general practitioner, many lives may be saved by consultation with some one theoretically and practically familiar with the correct technique for the removal of the appendix, or any complication that may have arisen. It can no longer be claimed that the amelioration of symptoms in acute appendicitis usually contraindicates surgical interference, for dangerous pathologic changes may progress rapidly under apparently favorable conditions, which can not be positively known until the abdomen is opened. The pulse and temperature may often give no evidence of impending danger until complications have developed beyond the control of the physician and surgeon.

LOUISVILLE.

SOME THINGS THE OBSTETRICIAN MAY DO TO ASSIST THE LYING-IN WOMAN, AND SOME THINGS HE HAD BETTER NOT DO.*

BY T. J. SHOEMAKER, M. D.

By way of explanation, I would say I wrote the following paper just as I would write a letter to a friend. I did not refer to any authors or book, but wrote my thoughts down just as they came to me; thus you will understand why it is I seemingly jumped, as it were, from one subject to another. I did not expect to advance any new ideas, but to call attention to some things that may have passed out of the mind of the busy practitioner.

It is not my intention to attempt to write a paper to teach how to attend a case of obstetrics, but to mention some things that will be of advantage to the patient, as well as the obstetrician. When the obstetrician is called to attend a lying-in woman, he should enter the sick-room quietly, speak pleasantly to the patient, ask her how she is feeling. If everything is going on quietly and smoothly, after he has paid his respects to those in attendance he should call for water that has been boiled and not cooled with cold water; to this he should add his bichloride tablets, and then bathe and wash his hands thoroughly, and if he has not previously pared his fingernails, he should do so now, and get

*Read before the Kentucky State Medical Society, April, 1903.

all of the dirt from under them. If he has whiskers, he should also give them a bath and disinfect them. When he has everything aseptic he may walk gently up to the bed and ask the patient to permit him to examine her, that it is very proper that he should make the examination to ascertain her condition, that he will not cause her any extra pain. The examination should be made in the most gentle manner, with the index fiinger, first lubricating it with pure fresh olive oil. A well-educated index finger will make known many things to the accoucheur; whether the os uteri lies low or is high up, dilated or dilatable, whether in a normal position or turned back toward the hollow of the sacrum, and many other things. If pains are severe and the os uteri is turned back, they will never do any good until the accoucheur brings the os uteri down straight and holds it in position. This is not always so easily done. Sometimes you may succeed in reaching the os with the index finger, and sometimes you can not. Then we might try turning the patient on her left side and by pressing down on the top of the uterine tumor with the left hand, and then we may be able to reach the os with the index finger of the right hand. When we once get it in the proper position we should hold it there until the pains have sufficiently dilated the os for labor to go on in a regular manner. Sometimes when the pains are slow and weak we may start them up by titilating the os in a circular manner, or when the os uteri is low enough, one might stretch the os by using the index finger and its twin brother; this will increase the pains as well as dilate the os. Sometimes we can increase the pains by pressing on the perineum with the index finger when the pain is on or when we want to bring on the pains.

Sometimes in a lifetime we may run across a "crow-quill os uteri." We will about come to the conclusion that the woman's os has grown entirely up, and that it has been hermetically sealed up, as it were, after the pregnancy has taken place. But do not despair, time and perseverance will help you out, and you will eventually find the little spot high up and far back that you can make some impression on with the end of the index finger. And when you once succeed in getting the end of the finger into the os uteri never take it out if you can possibly help it until you have brought it down and forward. Don't you never let your finger forget its cunning, but do not be too officious

when labor is progressing regularly, although we may hasten labor by titilating the os and thus increasing the pains.

It requires some judgment about giving chloroform in labor when those cutting and grinding pains are dilating the os. Sometimes a little whiff of chloroform will take off the rough places with the nervous lying-in woman, just as a drink of good Bourbon whisky will make the stones and clods smaller when one is riding over a rough country road in a buggy. But you can not at all times keep up chloroform to an advantage. Sometimes it will stop the pains entirely, and you will be compelled to abandon it absolutely. There is one thing I would warn the young accoucheur against; when you have a primipara case of labor and the pains are going on lovely and the os uteri is not only dilatable but dilated well, and the bag of waters well formed, and you feel like you are going to have a chance once more to be free and sit beside your best girl in the near future, and pour into her ear tales of love, or if you are just married that you will soon be by the side of your darling little wife, do not in your anxiety be tempted to rupture the fetal membranes. If you should become so unguarded at an evil moment you will have, I fear, many hours to regret it. The pains will stop suddenly, everything will come to a standstill, you will think about your past troubles and your sins and dead relatives that were once so dear to you; you will think your past troubles were small compared with how foolish you have just acted. Your fondest hopes have all departed and blasted, and you are doomed to sit like a condemned criminal until nature may, after a long time, return to action for your relief. The accoucheur had better wait and permit the baby to be born with a veil over its face than to do such a rash thing. Let the bag of waters help the labor as long as it will hold on. Of course, when you have a multipara woman in labor, when the os is well dilated and the bag of waters well formed, you may take advantage of a hard pain and rupture the membranes, and labor will go on lovely. Even if it does not, you can give a drachm of Squibbs' fluid extract ergot and repeat if necessary in a reasonable length of time. But I would not advise more than two doses of ergot, for fear of harm to the child in utero. If that does not do the work, desist, and either wait a reasonable length of time or put the patient under the influence of Squibb's chloroform and deliver her of the child at once with the obstetrical forceps.

I think it is a very good practice if the labor has been tedious to give just before you deliver the placenta a teaspoonful of fluid extract ergot to the mother and see that the placenta and membranes are entire. Be careful to turn out all the blood-clots from the womb and vagina. I think it is a good plan to keep up a strict watch over the pulse after confinement for an hour after the child is born, and to place the left hand over the womb and keep control of it, if you suspect there is going to be any post-partum flooding. You can always tell then what is going on. You will have less trouble than to let the womb get away from you and have to introduce the hand and arm up about the region of the stomach to bring away blood-clots and induce the womb to contract even by holding a lump of ice in place in the body of the womb. After you have had a case of post-partum flooding and have gotten the womb back to its proper size, next time you would be more than willing to hold it in the hollow of your hand for an hour. One never forgets a bad case of post-partum flooding; that pallor of the face will haunt you for a long time thereafter.

I want to say something to you about support to the perineum, so-called. When you have extra hard pains to contend with, and the head of the child is advancing rapidly toward the perineum, you don't want half-a-dozen old wiseacres standing around yelling to the lying-in woman to shut her mouth and put her chin down on her breast and bear down the pains. The accoucheur wants to be master of the situation himself. Now, it is the head that needs the holding back, to regulate its pressure against the perineum, which the accoucheur can do with the index and its twin finger of the right hand, when the pains are at their hardest, until the perineum is perfectly stretched. If you depend on supporting the perineum from the outside before it is properly stretched, you may have the chagrin of feeling it divide beneath your hand. Of course, after the perineum is properly stretched, it is all right to support from the outside.

I want to say something about the lying-in woman getting tired of and vexed at the accoucheur's meddlesome assistance. Perhaps many of us examine our patients too frequently. But some women are not satisfied if you are not around them, examining them, etc. They think you are not doing anything for them. But there are others that do not want it, and they may say some ugly things to the accou-

cheur or about him. Then he might quietly withdraw and let her alone if everything is going on all right and he can leave her safely. He may employ his time talking to the other ladies about the room or pick up something and pretend to read, just any old thing will do—an almanac if you can not find anything better. In a short while she will come around all right. You will hear her call for help, and if no one pays any special attention to her you will hear her cry out, "Oh, I am going to die!" Pretty soon if she does not call for you some one else will say "Doctor, do something for the lady, please."

I want to say something to you about the use of chloroform in cases of labor. There are but two objections to its use so far as I know, if the patient can use chloroform at all, viz., it sometimes stops all pains and the obstetrician may have to abandon it altogether, and I think a long-continued use of it in a case of labor may cause post-partum flooding. I think in those cases it is best to give ergot hypodermatically before delivering the placenta, or if the stomach is not sick, a drachm of fluid extract ergot by the mouth. I always use Squibb's chloroform for inhalation.

I want to say something to you about the delivering of the placenta, and that will close this paper. When I attended medical college they taught that the accoucheur should wait for a time, say for an hour, after the child was born before delivering the placenta. For years I have always delivered the placenta as soon as I could remove the child. If the child is strong it is not necessary to wait until the pulsations stop entirely in the umbilical cord. I tie the cord and remove the child. Keep a strict watch over the uterus, and when the child is out of the way make gentle pressure on the womb and slight traction on the cord, and ask the patient to blow against the palm of the hand. This procedure throws the diaphragm down and assists in bringing on contractions of the uterus. The practice of the old midwife of having the patient to blow in a bottle will accomplish the same thing. I never have seen any good reason for waiting to deliver the placenta. On the contrary, if you will follow up the contractions caused by labor you will succeed much better than if you wait and let the contractions die down, and then you are not so liable to have the so-called hour-glass contractions of the womb. Labor pains have the same impression on the uterus that electricity has on the muscles of a

frog's leg—the contractions will continue after the cause is removed, and thus you will see the advantage of the quick delivery of the placenta. If I am so unfortunate from any cause to have a "bob-tail" placenta, I give the patient chloroform and introduce my hand and deliver the placenta without delay.

MORGANFIELD, KY.

BIOGRAPHICAL SKETCH OF DRS. DAVID PUSEY, WILLIAM B. CALDWELL, AND PRESTON B. SCOTT.

BY T. B. GREENLEY, M. D.

DOCTOR DAVID PUSEY.

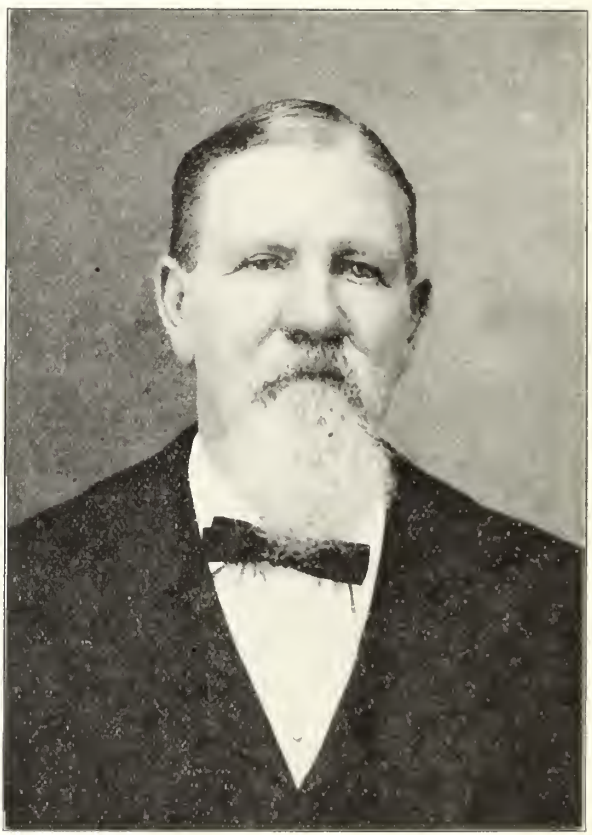
Dr. David Pusey was born on the old Pusey farm near Garnettsville, Meade County, Ky., December 22, 1831. He was a son of Mr. Joel Pusey, an early emigrant from Maryland. He was a brother of the late Drs. Henry and Robert Pusey and Mr. Evan Pusey, and also of Messrs. William and John R. Pusey, who are still living. William is the oldest of the family and still resides at the old homestead, being now eighty-odd years old.

Dr. David Pusey studied medicine with his brother Henry, who praticed medicine many years at Garnettsville. He attended lectures and graduated at the Medical Department of the University of Louisville. He also attended a course of lectures at the Jefferson Medical College at Philadelphia.

Dr. Pusey commenced the practice of medicine at West Point, Ky., in the early '50s, where he remained several years, and then moved to Brandenburg, Ky., where he continued up to his death, January 21, 1903. He marrried Miss Nannie Brashear, daughter of Robert Brashear, jr. Her father was called "Little Bob," to distinguish him from his uncle Robert, who was a much larger man. He was a son of Levi Brashear and nephew of the celebrated Dr. Walter Brashear. They both lived in the lower end of the county, near the mouth of Salt River. Miss Nannie was a beautiful young lady and very popular with everybody.

They had a family of four children, three sons and one daughter. One of the sons, Dr. W. B. Pusey, resides in the city of Louisville and is a prominent specialist in ophthalmology, etc. The daughter, Miss

Maydee, still resides in Brandenburg with her step-mother. She is quite an elegant young lady and very popular in society. After losing his first wife, Dr. Pusey married Mrs. Virginia Carter, of Lebanon, Ky. There were no children by the last wife, who is a most amiable, pleasant lady.



DOCTOR DAVID PUSEY.

Of the other two brothers, T. L. Pusey is in Chicago in the insurance business, and R. D. Pusey in Indianapolis, railroading. Dr. Pusey was quite popular and successful as a physician, and stood well as an honorable, pleasant gentleman.

The Pusey family is quite noted for the number of physicians who have and still represent it. I have known ten doctors among them, and can say that they all were and are men of intelligence and good

standing, doing honor to their profession. Take the Pusey family altogether, they are a kind-hearted, good set of people, and very affectionate to each other. And they can now say:

"We thank the Heaven our lengthened life
Has passed in love unmarred by strife."

DOCTOR WILLIAM B. CALDWELL.*

Dr. Caldwell, son of William and Anna Trabue Caldwell, was born at Columbia, Ky., on the 3d day of April, 1818. After obtaining his literary education, he studied medicine in Columbia under a preceptor. He attended Transylvania University at Lexington, where he graduated in the spring of 1841. He afterward supplemented his medical education by attending a course in the University of Pennsylvania, and also a course in the University of Louisville.

He practiced medicine in Columbia until January, 1846, when he moved to Louisville, where he soon acquired a lucrative practice. He continued to practice his profession in the city until 1870, when on account of bad health he was compelled to retire, very reluctantly.

He was elected to the legislature in 1869. He made a very eminent member, and was quite popular. He was quite a business man and engaged in various enterprises. He was connected with the Louisville & Nashville Railroad Co. and also the Jeffersonville, Madison & Indianapolis Road. He was also at one time president of the Louisville Cement Company and director of the Birmingham Iron Company. The doctor joined the Baptist church in 1837, and became quite an active religious worker. He aided in uniting the First and Second Baptist churches, to form the Walnut Street Baptist Church, from which many churches have been formed. He aided in the establishment of the Baptist Orphans' Home. In 1847 Dr. Caldwell married Miss Ann Augusta, daughter of Hon. James Guthrie, a noted lawyer of Louisville. She was a lady of deep moral and religious impressions, and spent a great deal of her large estate in charitable objects. She almost forgot herself in caring for others.

Dr. Caldwell died in May, 1892. He belonged to one of the best families of Kentucky. He had three brothers, all lawyers of eminence,

*Dr. Caldwell's name was omitted in my sketch of old doctors read before The Filson Club and published in the AMERICAN PRACTITIONER AND NEWS.

who settled in Louisville from Columbia, Ky., to wit: Isaac, George Alfred, and Junius. Before coming to Louisville George Alfred represented his district in Congress. The doctor left a son, who represents the large iron company in Birmingham, Ala., as president.

Fame to those who strive to do right,
But it requires work almost day and night.

DOCTOR PRESTON B. SCOTT.

Dr. Preston B. Scott was born in Frankfort, Ky., September 12, 1832. He was the son of Col. Robert W. Scott, an old and honored citizen of Franklin County, who was a man of wealth and cultivated tastes. His mother was a woman of eminent qualities, and belonged to the Brown and Preston families.

The doctor's father aided in erecting the first public school building in the State, and his son, Preston, was among the first pupils. He was selected to make the inaugural speech. He attended the school of the Rev. James Ellis at the age of fifteen, to prepare himself for college at Georgetown, where he graduated with honors. He acquired the master's degree in 1853.

He studied medicine with the noted Dr. Lewis Rogers, of Louisville, and graduated in the Medical Department of the University of Louisville in 1856. He spent a year as interne at the Louisville City Hospital. In March, 1857, he opened an office to practice medicine in Hickman County, Ky. In 1859 he moved to Bolivar County, Miss., where he acquired a large practice. In 1861 he entered the Confederate army as a private. In 1862 he was appointed surgeon of the Fourth Kentucky Infantry. He soon became brigade-surgeon on the staff of his early friend, the lamented Gen. Hardin Helm. At the battle of Jackson, Miss., he received another promotion and became associated with Dr. David W. Yandell as medical director on the staff of Gen. Joseph E. Johnson. After this he was assigned to duty as medical director to Gen. Leonidas Polk, and served up to the time of the General's death at Kenesaw Mountain. He was then assigned to the charge of all the hospitals in Mississippi and Alabama, remaining until the close of the war, having served on the staffs of Generals Stephen Lee, Dabney, Maney, and Dick Taylor.

In 1865 Dr. Scott returned to Kentucky, and commenced the practice of medicine in Louisville. In October, 1862, the doctor married Miss Jane E., daughter of Mr. John W. Campbell, of Jackson, Tenn. They had two children, Jennie Campbell and Rumsey Wing. The doctor soon became eminent as a physician and acquired a large practice. He was a member of the Episcopal Church, and took great interest in religious and benevolent matters. He was in charge of the Episcopal Orphans' Asylum and also of the Masonic Widows' and Orphans' Home. He became physician to the Young Women's Home. He had also served as a member of the Board of School Trustees. The doctor was a gentleman of refined, dignified, and elegant manners. The doctor died in 1901 at the Norton Infirmary, where he was confined by sickness several weeks.

Meadow Lawn, Ky.

ANESTHETICS.*

BY C. H. TODD, M. D.

In presenting briefly the subject of Anesthetics the speaker will confine his remarks to the action of chloroform.

The nervous system is divided into two great divisions: The brain and spinal cord compose one division, known as the cerebro-spinal nervous system, and the organic or great sympathetic nervous system composes the other division.

The first division, the cerebro-spinal system, has nothing directly to do with the carrying on of physical life.

We are told that the effect of chloroform is first upon the brain and then upon the spinal cord, and the reflex functions of the cerebro-spinal axis are abolished so far as concerns the voluntary muscles, which consequently lie perfectly relaxed and passive, and while the patient is profoundly insensible the parts concerned in the respiratory movements remain active and all the faculties essential to life intact.

The second division, the great sympathetic nervous system, controls the organic life of the human system, both physical and mental.

*Read before the Kentucky State Medical Society, April, 1903.

These organic nerves never rest and are distributed to every minute portion of the body, and so the heart, lungs, liver, stomach, kidneys, etc., never rest.

Each minute cell in the human body is composed of molecules, which must be a "typical gas," and all metabolic action is controlled by the organic or great sympathetic nervous system.

In what way does chloroform cause sudden death? This is the query that naturally arises. The action of chloroform in producing total insensibility is confined in its effect to the suspension only of the functions of the cerebro-spinal nervous system, but is it not probable that when sudden death occurs it is caused by the involvement also of the organic or great sympathetic nervous system, whereby a chemical change takes place in the gas molecules, resulting in a dynamic or explosive action which instantly inhibits all metabolic action of cell life itself?

May I ask, What is animal heat? Is not this term a misnomer? Is not the so-called animal heat an aëriform or gaseous body or substance? Is not heat a property of the molecules, such as light, motion, electricity, magnetism, dynamic or explosive action, etc? Heat is a fixed property, and cold means only a lesser degree of heat. When the human body is opened you perceive a steam or vapor or gas arise, which is animal heat, so-called. The animal heat is always manufactured by the arterial blood. The red corpuscles are said to carry oxygen. What do the white corpuscles and the liquor sanguinis carry, as they are both of the same temperature as the red corpuscles? Is it not reasonable to suppose that the white corpuscles and liquor sanguinis contribute their respective share to form gaseous substances, which commingling with the oxygen of the red corpuscles form conjointly a gaseous substance which we call animal heat, a term which I again pronounce a misnomer?

Pure oxygen is a violent poison, but if united approximately with four fifths of nitrogen makes a respirable atmosphere.

A condition exists within the body which is similar to the air without, and this inside condition, called animal heat, is a typical gas, having the same properties which as already stated exist in the molecules, namely, dynamic or explosive action, electricity, magnetism, heat, light, motion, etc.

Very little has been known about gases and their action, but since the late researches and publications of my fellow townsman, Dr. Jacob Glahn, have established the law of chemical action of resolution in con-

trast to the chemical action of dissolution, our conception of germ causation of disease must be modified.

The fact that chloroform is often indispensable for the safe accouchement of the woman with organic heart disease is strong evidence that sudden death from chloroform is not due to heart disease, and the same may be said in regard to disease of the kidneys when we consider that chloroform is our most valuable remedy in puerperal eclampsia.

Owensboro, Ky.

SOLITARY ULCER OF THE BLADDER, NON-TRAUMATIC AND NON-TUBERCULAR IN ORIGIN.*

BY G. E. ARMSTRONG, M. D.

Associate Professor of Clinical Surgery, McGill University.

On the 14th of October, 1902, a young man twenty-one years of age was transferred from the medical side to my ward in the Montreal General Hospital, complaining of pain in the end of the penis and frequency of micturition.

He had diphtheria when six years of age, followed by temporary paralysis of the vocal cords. He says that before the onset of the present illness he frequently suffered from severe pain in the lower abdominal region in the middle line. The pain came on about an hour after breakfast and disappeared as soon as the bowels moved. This was a daily occurrence, but he thought little of it, and did not consult a physician. His habits are good; he does not use alcohol in any form, smokes but little, and has no venereal history.

The present illness came on quite suddenly about the 8th of August, 1902. He was in the best of health at the time. Three symptoms appeared almost simultaneously; these were:

1. Pain at the end of the penis, about the end of the corona, on the dorsum, just before micturition, and generally very severe, necessitating the administration of morphia.

2. Frequency of micturition. He passed urine every twenty minutes or half hour; when lying on his back the intervals were longer.

3. Loss of expulsive power; the urine just escaped and dropped down at his feet.

*Read before the Congress of American Physicians and Surgeons, Washington, D. C., May 12, 1903. Reported in the Montreal Medical Journal.

The act of micturition was not accompanied by pain. He noticed nothing unusual about the urine, and did not observe any blood. He could give no reason for the occurrence of these symptoms; he had had no accident, had not suffered from violence in any form, had not been exposed to the weather more than any lad who drove an express delivery wagon, and as before remarked, had no venereal history.

On the 22d of August, eight days after the onset of the symptoms, he consulted his family physician, a careful, accomplished, and painstaking man, who passed a steel sound. This did not cause much pain, and a few drops of blood followed.

The family history was negative; father, mother, three brothers and two sisters were alive and well. One brother died of diphtheria in infancy. He was a fairly well nourished young man of medium height, and weighed one hundred and twenty-three pounds—twelve pounds less than when he first became ill. He complained almost constantly of severe pain at the end of the penis. If morphia were withheld his cries were so loud and frequent that all the other patients were disturbed. The urine was turbid and contained large quantities of thick, tenacious mucopurulent matter. On standing, this material became very thick and viscid. The reaction was alkaline; the specific gravity could not be determined because of the thick muco-pus. There were a few phosphates and triple phosphates, and an abundance of pus cells, but no casts. For a fortnight I kept a couple of enthusiastic students at work examining the bacterial flora, their results always being checked by the hospital pathologist, Dr. McCrae. Streptococci were always present in numbers, as well as small and large diplococci. The tubercle bacillus was never found.

The patient was losing weight. His temperature varied between 97° and 102° F. Under the influence of general anesthesia I passed searchers into the bladder, with a negative result. The examination was followed by a slight hemorrhage. Prolonged lavage failed to secure sufficient clearness of bladder-contents to permit of the use of the cystoscope. The physicians reported that there was no evidence of any intrathoracic disturbance. Outside the bladder nothing could be found to account for the temperature and emaciation.

I regarded the case as probably one of tuberculous cystitis, and decided to make a suprapubic incision, with the double object of exploration for diagnostic purposes, and if tuberculous ulceration were found, the establishment of permanent drainage for the relief of the pain, tenes-

mus, and septic absorption. Bladder lavage, using solutions of boracic acid, permanganate of potash, carbolic acid, silver nitrate, and Thiersch's solution had failed to afford any relief, and morphia was required to secure rest and sleep.

On the 25th of November, with the patient in the Trendelenberg position, I made the usual incision in the median line. I had only separated the muscles when the boracic solution which I had placed, as I supposed, in the bladder, began to flow out. The edges of the incision were retracted and the solution removed by swabs. By means of a strong reflected light I then found I had opened the pro-peritoneal space or Cavum Retzii. The bladder, small and contracted to about the size of a hen's egg, lay at the bottom of the space with a large opening in its anterior wall the size of a 25-cent piece. The edges of the opening were thick, rounded, and somewhat irregular in outline; the mucous membrane was everted. I could bring the internal orifice of the urethra, the opening of the ureter, and every part of the inner surface of the bladder into view, but no ulceration or other change could be detected. The space in front of the bladder measured five inches laterally and four inches antero-posteriorly. After careful cleansing a large-sized rubber tube was inserted through the suprapubic wound down to the opening in the bladder wall. The space lessened considerably in size for a time, but the temperature did not improve and emaciation continued.

On the 20th of January, 1903, I made a perineal puncture and through this inserted a catheter into the bladder with the view of securing dependent drainage. This did not prove to be altogether satisfactory, for while the greater part of the urine escaped by the perineum, there was also some overflow through the suprapubic wound and the Cavum Retzii was kept bathed with it.

About the middle of February the patient complained of pain in the left loin, and on the 13th of March I opened a peri-renal abscess. The kidney was palpable, not much enlarged, firmly imbedded in adhesions, and the patient's condition was so bad that I did not deem it wise to explore further.

Unfortunately for the boy and for my argument, he died on the 24th of April. The autopsy showed acute miliary tuberculosis of both lungs, caseous tuberculosis of the bronchial glands, miliary tuberculosis of the left adrenal, spleen, kidneys, left ureter, and bladder.

My second case was a healthy schoolboy, twelve years of age, with a good family history. He noticed blood in his urine on the 20th of December, 1902. The hematuria persisted and one week later he began to suffer pain at the end of the penis before and after micturition. The pain would pass off in about half an hour. At this time there was no marked frequency in urination. On the 17th of January, 1903, he consulted his family physician for the pain, and it was found necessary to administer morphia.

I saw the boy in consultation on the 23d of January and removed him to the Montreal General Hospital. The urine was turbid, acid, and contained blood, pus, and vesical epithelium. Two moderate-sized hyaline casts were found, and there were also found diplococci and staphylococci.

On the following day, under anesthesia, I introduced the cystoscope and found on the anterior wall, about two inches behind the urethral orifice, a patch of ulceration as large as a ten-cent piece. A part of the circumference was abrupt, well defined, the remainder of the circumference gradually passing into healthy tissue. The base was dark but not actually bleeding. Clear urine issued from the ureters. The bladder was then injected with a 1-per-cent solution of silver nitrate, and after an interval of two minutes this was withdrawn and the bladder injected with normal salt solution. This treatment of the bladder was repeated daily for seventeen days, when all symptoms had subsided. During his stay in the hospital the temperature varied from 97° to 99° F., and the pulse from 72 to 96. He has remained perfectly well up to the present time.

In 1876 Bartlett[1] reported the death of man fifty-three years of age from peritonitis secondary to intraperitoneal rupture of the bladder. At the autopsy there was found exactly in the middle line, on its posterior aspect, one inch from its apex and corresponding to the perforation, an ulcer which bore an exact resemblance to a chronic gastric ulcer; distinct loss of substance, as if a piece had been punched out; funnel-shaped, smooth edges; at one side was some puckering.

In 1885 Reeves[2] reported the death of a young woman from peritonitis secondary to perforation of the bladder. The perforation was through the base of a single ulcer. The perforation would seem to have been temporarily closed by omentum, which separated during the removal of a urethral polypus.

In the same year Oliver[3] discussed the occurrence of single simple ulcer of the urinary bladder similar to that occurring in the stomach and duodenum, but does not report cases.

In 1892 Wyeth[4] reported a case of intraperitoneal perforation in the bladder of a man aged forty-three years. The perforation occurred through the base of an ulcer about the size of a half dollar. The adjacent part of the bladder wall was dark-colored. This patient passed a large amount of bloody urine four days before his death.

In 1896 Fenwick[5] reported six cases of "simple solitary ulcer of the urinary bladder" in a clinical lecture published in the British Medical Journal of May 9, 1896. He has observed this ulcer in both sexes. The majority of his patients were young men about twenty years of age. He has observed contact ulcers on the opposite wall, especially in the female organ.

In 1892 Johnston[6] reported a case of death from peritonitis following a rupture of the bladder through the base of an apparently simple ulcer three inches in diameter.

In 1900 Chaufford[7] reported an intraperitoneal rupture, elliptical in shape and the size of a two-franc piece, occurring at the upper posterior part of the bladder, and noted its resemblance to a gastric ulcer.

Just a year ago Christopherson[8] reported a most interesting case of a man, aged forty-nine years, with symptoms of what he thought to be probably a tuberculous ulcer. These symptoms began about two years before, during an attack of rheumatism. They were: Frequency of micturition, pain during and after urination, suprapubic, and at the end of the penis. He had suffered from lead colic. No tubercle could be found in any part of the urogenital tract or elsewhere, nor was the tubercle bacillus to be found in the urine; had only passed blood sufficient to color the urine on one occasion. Through a suprapubic incision the cavity of the bladder was found to be small and the walls hypertrophied, but otherwise healthy except for a small, ragged, irregular ulcer with granular surface and thin edges, and about 1.9 cm. in diameter, between the two ureters and on the posterior part of the trigone. When it was touched over with swabs of wool wet with carbolic acid, 1-20, the surface bled readily. There were no signs of caseation or tubercles anywhere, and the ulcer looked more like an anal ulcer than anything else. The ulcer was not found indurated or perforating, and quite unlike a gastric ulcer. There were no signs of malignant disease. The bladder was drained suprapubically and washed out with a solution of borax and iodine for twenty-eight days. In about two months he gained two stones in weight, and left the hospital apparently cured.

On January 7th of the present year Daly and Harrison[9] reported a case of spontaneous rupture of the bladder occurring in an Irish harvester thirty-six years of age. The man was seized with pain while carrying a pail of water with which to wash himself. At the operation an intraperitoneal rent was discovered of sufficient size to admit the tip of the index finger. This was sutured with two layers of Lembert sutures, the mucous membrane not being included. The rent was situated midway between the fundus of the bladder and the bottom of Douglas' pouch, and was vertical and central. Notwithstanding some deplorable complications, the man made a good recovery.

Rawson[10] reports the death of a woman, thirty-five years of age, taken suddenly ill and dying in thirty-six hours. At the autopsy a small ulcerated opening was found at the summit of the bladder. The mucous membrane of the bladder for the breadth of half an inch around the opening was highly injected with blood, and was of a much darker color than the rest of the mucous lining. Purulent matter was adherent about the edges of the ulcer. The woman had been confined with a living child about a month previously by a midwife, and from what could be made out she had had a favorable labor and attended to her usual work after the first week. She had never referred to any pain in the region of the bladder, but had been heard to complain, both before and after labor, of an inability to empty her bladder completely.

Thurston[12] reports a case of chronic perforating ulcer of the bladder occurring in a married woman fifty-two years of age. The symptoms had been present for over four years before the perforation of the fundus of the bladder occurred. The hole had been closed by adherent omentum.

We are all familiar with tubercular ulceration of the bladder and with the breaking down of tissue secondary to neoplasms, and Proksch[11] has told us something of syphilitic ulceration. It occurs rarely in cases of long-standing prostatic cystitis. Does there occur an ulceration of the bladder wall independently of trauma (including pressure), tubercle, syphilis, and new growth? I am not prepared to answer that question in a monosyllable. The evidence that I have collected favors, in my opinion, an answer in the affirmative.

An ante-mortem diagnosis, before the advent of the cystoscope, was impossible, and the true condition was only determined after the occurrence of perforation, and then generally in the autopsy-room.

I have selected these seventeen cases from a larger number in which the reports are sometimes too incomplete to permit of classification. In

some instances perforation has occurred after a fall or the receipt of some form of violence. It yet remains to be determined just how much force is needed to rupture a full or distended bladder, not weakened at any one point by ulceration or sacculation. In this list all such doubtful cases are excluded.

I think we must look to one or more of three conditions for the cause of single ulcer of the bladder—infection, thrombosis, and syphilis. It has been thought by some that probably most perforating ulcers were due to a breaking-down gumma in the bladder wall. In very few of the case reports is the suspicion of syphilis raised, and the autopsy findings have not disclosed a condition that has suggested the presence of breaking-down gumma. In both of my cases cocci of various forms were present. The first may have been tubercular in nature from the beginning, but at the time of first operation there was no appearance of tubercles. But it would appear that there must be some other etiological factor present in addition to the infection. Simple infection of a normal bladder does not, as a rule, end in perforation. Mention is frequently made of the similarity between perforating ulcer of the bladder and that of the stomach and duodenum, and it is quite possible that in each case a similar pathology obtains.

The condition is referred to by Rokitansky under the name of chronic perforating ulcer of the bladder. Lawson Tait refers to four cases, in two of which Sir J. T. Simpson established a vesico-vaginal fistula to obtain physiological rest and relief to the patient from pain. The evidence of the exact nature of the bladder lesion in these cases is not made clear in the report.

The symptoms in the majority of cases were pain, frequency of micturition, and the presence of small quantities of blood in the urine. The pain is very severe and often referred to some point in the penis in the male and about the neck of the bladder in the female. The intensity of the suffering is often very great. In both of my cases the penis was held in the hand and guarded from dreaded violence. These boys would cry out with the pain of the penis. Fenwick states that some of his patients would cut the pocket out of their trousers that they might carry the penis and so better protect it. The suffering interferes with nutrition and requires morphia for its relief. In some cases there seems to have been very little pain indeed.

The frequency in micturition varies in different cases. My first case urinated very frequently. I think that I have found a definite relation

to obtain between the situation of the ulcer and the pain and the frequency of micturition. If the ulcer is about the trigone and ureteral orifices, or in fact if it is in the neighborhood of the neck of the bladder, the pain and frequency are great. On the other hand, in those cases where the ulcer has been situated about the fundus there has often been a remarkable absence of symptoms until the occurrence of hemorrhage of perforation. The symptomatology in this respect bears a close resemblance to that of gastric ulcer.

The diagnosis can be made with a considerable degree of certainty when the onset is sudden and the symptoms mentioned are well defined. The cystoscope is of the greatest value here, and should always be used if possible.

The prognosis in cases seen early is good. They yield readily to treatment, and in some instances have probably healed without any treatment at all.

The local application of solutions of nitrate of silver seems to have been most generally useful. In my second case I used a solution of 1 in 10,000. It caused some smarting at first, which passed away soon after the solution was replaced by a saline solution. I used the injection daily and the pain became progressively less as the patient improved. Sir James Simpson is reported to have treated two cases successfully by the establishment of a vesico-vaginal fistula. Christopherson made a suprapubic incision, touched the ulcer over with swabs of wool wet with carbolic acid, 1-20. The bladder was drained suprapubically and washed out with a solution of borax and iodine for twenty-eight days. In two months he gained two stones in weight. He left the hospital apparently cured.

Boracic acid, salol, urotropin, and helmitol are indicated.

It is unfortunate that ulcer situated on the fundus is so often without striking symptoms. A hemorrhage may give the first intimation of its presence. If perforation occurs into the peritoneal cavity it may be closed. I believe that as good results may be obtained here by early diagnosis and prompt interference as in the case of perforating ulcer in the stomach; perchance even better results, because there may be a less virulent infection.

In conclusion, I would submit that in view of the clinical evidence now accumulated for the existence of a single non-tuberculous ulcer of the urinary bladder, and the post-mortem reports of six perforations of the bladder through the bases of single non-tubercular ulcers, the condi-

tion should be more generally recognized, and should find a place in the text-books.

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MONTREAL, P. Q.

Reports of Societies.

LOUISVILLE CLINICAL SOCIETY.*

Stated Meeting, Tuesday, February 17, 1903. Dr. Carl Weidner, President, in the Chair

The essay of the evening, "Timely Operation in Primary Appendicitis," was read by William H. Wathen, A.M., M.D., LL.D. [See page 41.]

Discussion. Dr. T. P. Satterwhite: It is a very interesting paper, and I suppose that nine tenths of the surgeons will endorse it. I do not know but that possibly they may save more lives than those who reverse the practice, but I can not bring myself up to the idea of opening the abdominal cavity; I think some surgeons do wrong in telling their patients there is no danger in this procedure. It is a very serious matter to open this cavity. There is no method in which you can say positively there is no danger from infection. With all the scrubbing and technique of operation, people do die from these laparotomies, and I have no doubt but that Dr. Wathen himself has lost some cases from sepsis from some inexplicable cause. We know that cases do get well without operation, and if there are no outside symptoms, no acceleration of the pulse and no fever, my course is to give purgation by means of a large dose of castor oil, and hot applications locally to the

*Stenographically reported for this journal by Edgar Allen Forbes.

abdominal wall. If after purgation and hot applications, symptoms of appendicitis persist, I think operation should be performed. But unless there are some of these symptoms, I am in favor of waiting until purgation has taken place and then total abstinence of all kinds of food.

Dr. M. K. Allen: I have enjoyed the paper very much. My opinion is that Dr. Wathen has taken the right position. If the surgeon has any place in the profession, certainly this is one of them. If a case of appendicitis is operated upon early, the chances of saving life are as great as in diphtheria since the introduction of antitoxin. I believe that formerly, and to some extent even now, we have a great many death certificates signed typhoid fever that are really appendicitis. That may account for the high death-rate. I believe that Dr. Wathen has taken the right position and in all cases of appendicitis, and in doubtful typhoid cases, the surgeon ought to be called in to determine the question. This is my judgment, and I believe many lives would be saved if the surgeon were called in early in some cases of typhoid fever.

Dr. F. W. Samuel: I have enjoyed the paper and in the main agree with the author. I am convinced that cases of appendicitis should be operated on if they can be seen in the early stage and that this would lessen the mortality to a great extent. The operation itself from a technical standpoint would be more perfect. I have operated on early cases where the peritoneum was not involved, and they were well almost within twenty-four hours. It is a bad plan to wait and see if the patient will get well after a satisfactory diagnosis has been made and they are willing for the operation. There is great difficulty in the operation when extensive adhesions have taken place.

I would avoid the inflammatory stage where the peritoneum is involved if it were possible, because extensive drainage is necessary to save life. It prolongs the recovery and complicates the case in many ways. I do not know whether I correctly understood the author, but I do not believe the mortality of operations in the interval is greater than operations during the primary attack. I believe it is exceedingly easy to operate during the interval, especially when there has been but one attack. These mild attacks of appendicitis are usually the ones not complicated; the adhesions are soft and the operation can be done in the interval with ease.

There is a class of cases referable to the appendix, where they have obscure colicky attacks, the so-called intestinal dyspepsia, which I

think call for removal of the appendix. I have frequently found the appendix involved, with stricture and many adhesions around the appendix. Such cases as these would fall into the category of operations. A man may die without having any fever and with a good pulse. I have operated many times when the temperature and pulse indicated nothing.

Dr. H. N. Leavell: I have enjoyed the paper; there is not any subject more interesting for discussion than appendicitis. It seems to be a question of disparity of opinion as to treatment and time of operation. I believe it is primarily a surgical disease and that we ought always to have a surgeon in proximity. So far as saying that every case should be operated upon, a great many concomitant symptoms would make us think this is not always rational. Sometimes objections are raised by our patients, and these cases have to be treated some way or another and if they refuse operative measures, what shall be done? The disparity of opinion is again very wide. Many of the text-books say use purgatives and then rest. Others say no purgation. Total abstinence from food is the only thing on which all agree.

As to the methods of application of heat and cold, most of the books say use heat, but some advise cold. Roswell Park advocates the ice-bag. So it is very hard to tell how to deal with these cases medically, and if we take the surgical reports, we find that cases operated on during the first twenty-four hours have a mortality of less than one half of one per cent. So the question is a very wide one and is bound to put us to thinking. I do not believe there is any hard and fast rule to be drawn. Every case should be a law unto itself. As Dr. Samuel says, I have seen cases without elevation of temperature or pulse, yet with a gangrenous appendix. This is why I say it is primarily and always a surgical disease, but we have to treat it medically sometimes. We medical men ought certainly to draw lines as to the use of hot or cold applications, purgatives and opiates. We know that sometimes we mask the symptoms and put the surgeon at a disadvantage.

Dr. Irvin Abell: I will confine my remarks to the operation in primary cases. I wish to agree with the essayist perfectly in his position that every case of appendicitis diagnosed early should be operated upon at that time. It all depends upon whether the diagnosis is made early enough; after distension of the abdomen and involvement of the peritoneum it is too late to operate safely. It is better to wait then until the interval.

As to the medical treatment with applications, I do not see that it makes any difference whether we use hot or cold. I do not see how external applications can influence an inflammation at the appendix, because the blood and nerve supply come from a very different source. I can see how purgation can do a great deal of harm, especially if the appendix is very much inflamed. I wish to put myself on record as agreeing with the essayist that it is essentially a surgical disease and should be operated on in the primary stage or allowed to go to the interval. We can not tell when pus will form, because the pulse and temperature are not infallible indications.

Dr. Ewing Marshall: I wish to speak also to the question of operation in the early stage; the question rather is, shall we turn over the entire abdomen to the abdominal surgeon? We are told of these obscure cases, the appendix sloughing off with no symptoms at all, no temperature, no pulse changes and but little change in local conditions. Now, are we to take every case of colic and turn it over to the abdominal surgeon? My own opinion is that as soon as you can make out with certainty that the appendix is involved, the abdominal surgeon should be called and the appendix removed. But before you know this, what are you going to do? Are the people going to wait? In many cases, as Dr. Satterwhite has said, some with oil and others with salines relieve the trouble entirely and cases have gone on under the care of these men for ten or fifteen years without any return. We can look back and see many cases which we have treated in that way. After the appendix is involved we should remove it, but not before we are sure of this fact.

Dr. Buschemeyer: I listened to the paper and the discussion with a great deal of interest. What I understand from the paper is that appendicitis should be operated upon primarily. I imagine that he means at the time we can make out that the appendix is involved—that every pain in the right iliac fossa is not appendicitis and we are not to turn these over for operation. The question of what treatment is indicated in every case of appendicitis is a very mooted one. We all have our ideas of what should be done and what should not be done. There are cases, as Dr. Satterwhite says, in which purgation does a great deal of good. In others, where suppuration has taken place, it is contraindicated. No one would attempt to give a patient in that condition a purge. I can recall a case that I saw with a gentleman in this room in which he and I both diagnosed appendicitis; the case was

operated upon and the appendix found in a healthy condition. After going on a little farther we found a gangrenous gall-bladder, which was operated upon, the patient making a speedy recovery. I have had cases which I diagnosed appendicitis; whether they were or not I can not tell positively, but after free purgation, the use of hot or cold application and careful watching, they have gone on to recovery. But as soon as you can make out that the appendix is involved, the thing to do is to remove it promptly.

Dr. G. B. Young: I am not an abdominal surgeon, but from my standpoint there is no doubt of the correctness of the view that as soon as a diagnosis has been made the appendix should be operated on. The difficulty with the non-experts is the question of diagnosis. Shall we turn over all cases of pain in the abdomen to the abdominal surgeon? I do not think so, but I do not think we ought to wait until we have made the diagnosis by ourselves unaided. I am inclined to think we ought to call the abdominal surgeon immediately in any case with pain in the right iliac fossa or even in the left. I recall a case of appendicitis which extended entirely across. We ought to call the surgeon at once unless we are sure it is a case of colic and not wait to get his opinion until the symptoms have masked the primary condition and made diagnosis more difficult. We should call him in consultation and get his opinion right away. Then, if it is a case of appendicitis and the patient will consent, he can operate at once. In some cases it will be impossible to determine that. In such cases it is better to wait and try palliative treatment. But if the surgeon has seen the case from the beginning, he will be much more able to arrive at a correct diagnosis later on.

Now, as far as therapeutic measures are concerned, there are a great many people who do not want to be operated on. Other conditions may also be present to contraindicate operation. In those cases they seem to do better with small repeated doses of salines, not enough to induce purgation but simply to get a series of peristaltic movements of normal intensity. The effect of that is to produce a certain amount of depletion locally, and that will contribute materially toward preventing engorgement going on until it assumes a condition of inflammation. I do not speak as an expert, and I see that since the discussion began the High Priest of medical treatment, Dr. Irwin, has arrived.

Dr. Irwin: I am very sorry I did not get here in time to hear the essay. I doubt not that from the surgeon's standpoint everything was

said that could be said. But from the medical point of view it would take considerable time to discuss the question. I have only to say that I have had few operations and have seen occasion for but few in thirty years. I can not recall an instance where I had to call in a surgeon for an operation. I would also report that I have had no deaths and but two recurrences. If my treatment was successful and my diagnosis correct, my treatment must have been a success. In the last eighteen years it has become a matter of surgical treatment with the majority of the profession, but I still cling to the belief that there are a great many cases which do not require operation. I think there are conditions which require operative interference, but every case must be stated separately. I do not believe in operating on all cases, and my experience justifies me. I say this not because I have some mental twist, but because I have had some experience in the past thirty years. There are cases and conditions existing where operation is called for, but the majority of them do better if treated medically. The mortality under medical treatment never exceeds ten per cent.

Dr. August Schachner: I thank the Society for the opportunity of speaking. Really I have a great deal of admiration for the courage of a man who starts a discussion on appendicitis. You can never tell where it is going to end. The essayist has limited the discussion to one point, and speaking to that point—as to whether we shall operate on all primary cases—I say yes.

In the first place, everything that we encounter in the right iliac region is not a case of appendicitis. A recent writer has pointed out fifteen or twenty different conditions simulating appendicitis, so there are a number of things that might mislead one. We are all apt to make mistakes, though when we come to the conclusion that it is appendicitis, I think by all means it should be operated on if the diagnosis has been made early enough. The phrase was quoted at the Georgetown meeting of the Kentucky State Medical Society that "every case should be operated upon as soon as the diagnosis is made." But the question is, when is the diagnosis made? If made early enough, I say emphatically yes. If not early, then it is a question. If we can make our diagnosis early enough I do not see how there can be any doubt about the greatest amount of good coming to the greatest number of people by operation. I think the tentative plan mentioned by one of the speakers of waiting long after we have made the diagnosis is about the worst plan that can be pursued. It will get us into more

trouble than any other. If we can make our diagnosis early enough, say within the first twenty-four to thirty-six hours or even forty-eight, we will have much better results by operating than by the tentative plan.

The other question is, all of us have seen cases which have subsided and had no return, but how do we know that it was appendicitis? We have to accept the premise that we have a case of appendicitis. The risk is infinitely greater if we proceed on the supposition that it is catarrhal. Of course we can not open the abdomen without some risk. It matters not how careful we are or how good our surroundings, there is always an element of risk, and a wise man will not try to present it as absolutely safe. But the risk is less by going in than by not going in, and it is a question between two evils.

Of course, if we can not make the diagnosis early, I know of nothing that will tax the surgeon's judgment more than to determine when it is best to go in. Certainly the cases where we have the greatest mortality are those operated on in the intermediate period, after the appendix has become gangrenous and ruptured and the process extended beyond the appendix. It does not make a great deal of difference whether it is the first day or the second so long as we know there is a rupture of the appendix and extension of the process.

If we have to operate in these cases where we have not a perfect walling off of the process, we have the highest mortality. The next best time is where the pus has formed, but everything has been walled off. Then it is simply a matter of lancing an abscess. If we do not make the diagnosis early enough, then we will have to use our best judgment as to when to operate.

One point made by one of the speakers was that we should have a surgeon in consultation at once and get the benefit of his experience in the case. This should be done not only in appendicular work, but in all pelvic troubles and conditions about the abdomen in general. We will in the course of time see the necessity of closer relations between the medical man and the surgeon. The surgeon is frequently called in to do operation in cases of intestinal obstruction where the patient has been carried through all the medical methods and the surgeon comes in practically to make an ante-mortem examination. When the discussion comes up in the Society room they will get up and say, "Here are the medical statistics and here are the surgical." The story would be entirely different if the surgical measures were instituted first and

not last. I realize this may bring down a storm of disapproval, but that is my opinion.

Dr. Carl Weidner: I will put myself on record as a firm believer that appendicitis is in most all cases a surgical disease. I may say the same of gall stones. Still I am like some of our medical friends; experience over a certain number of years has shown me that some of my patients in whom I had made the diagnosis of appendicitis with a fair amount of certainty, have gotten over the attack and lived along without any recurrence. I have had cases where I had a large tumor formed, with typical onset, infiltration, and exudation around the wall, where I said they must be operated upon, but the patient objected and lived for ten or more years afterward. The tumor had been as large as my fist and then went down. I must say that I have been very fortunate in having many cases got well under medical treatment. So I do not blame the medical men for not being so ready to have operations done. I concede that it is a surgical disease. I believe that Dr. Schachner has stated the matter in rather a fine way, that the question resolves itself into which is the greater risk, to go in or not go in. I think that if we could make the diagnosis early enough, it would be better to go in. If I had appendicitis myself and a diagnosis was not made for twenty-four hours, I would say, let me alone. After twelve hours' time the whole thing may be black and there may be adhesions and pus. This condition may occur at different periods, according to the character of the infection.

Dr. T. P. Satterwhite: How many surgeons have been called in to diagnose appendicitis who said it was appendicitis and operation necessary? And how many said it was not?

Dr. Carl Weidner: I could not say. They usually agree with me after I have made the diagnosis. I believe I agree in the main with the suggestion of calling in the surgeon early. It is due to him. I, for my part, am only too glad to have him relieve me of the responsibility. I have followed lately the plan of operating in the interval. What Dr. Wathen said about the adenoid tissue in the appendix and ileum applies to the colon as well. The coats are alike, and the lymphatics are alike in both.

We medical men are hit hard here to-night. It is hard to see how any application can be of benefit, as Dr. Abell says. But I think we can explain the effect of cold or heat applied to the bowel. Cold and heat have physiological effects. We are rather going back to old-time theories of practice.

Dr. W. H. Wathen: With the statement of Dr. Weidner that the appendix in its adenoid development is more like the cecum and colon than the lower part of the ileum, I must take issue. We have adenoid tissue through the small bowel and possibly throughout the large. In the small bowel the greatest quantity is in Peyer's patches. It is also true that we have relatively a great many times more of adenoid tissue in the appendix than in the cecum or in the colon. In fact, there are some cases where the adenoid tissue is so developed in the cecum that it is almost similar to that of Peyer's patches. Hence I draw the conclusion that we frequently have appendicitis supervening upon an attack of typhoid fever with extensive involvement of the adenoid structures of the ileum, the infection being conveyed through the lymphatics or through the bowel itself into the cecum and appendix. We can not consider the influence of inflammation upon the appendix in the same way as in the ileum or colon, for the reason that these structures drain perfectly, and there is no obstruction unless we have strangulation; whereas, in the appendix the adenoid tissue is often so developed at its mouth that we may have very poor drainage when there is any disease at all. Hence, if we have the germ lying in the appendix in a harmless state, it may very soon become pathogenic when obstruction destroys its normal resistance.

In favor of the primary operation, it has been demonstrated by the best men in this country and in the world, including Dr. Deaver, who had four hundred and sixteen operations within twelve months, Dr. Ochsner, who had an equal number in eighteen months, Dr. Weir, Dr. Abbey, etc.—in fact, all abdominal surgeons agree that we should operate before the disease has extended beyond the appendix, before adhesions are formed, and before necrosis, perforation, and gangrene, and that if the patient is otherwise in a normal condition practically every one will get well. Dr. Murphy says that the mortality will not be one half of one per cent. Now, you say your patient had appendicitis, and yet he recovered without operation. How do you know it was appendicitis? It was shown by Dr. Abbey in the pathologic exhibit at Saratoga that every appendix with deep involvement of its walls had one or more strictures. Your case may have been nothing more than catarrhal. Whenever it deeply involves the mucosa you will finally have one or more strictures. We do not know how great the contraction is or when the appendix may become again inflamed. We know of patients having appendicitis ten years after the first diagnosis. I do

not speak of those cases not diagnosticated appendicitis. We must first make the diagnosis, and when we are agreed that it is appendicitis the case should be operated upon before further involvement, because we then make a permanent cure, and there need be no complications if the surgeon understands the correct technique in these operations. I do not mean that all patients should be operated on under all conditions, for there may be patients who can not be operated on to advantage, or where any capital operation is contraindicated. The time will come when it will be the universal opinion that every case of primary appendicitis accurately diagnosed before the appendix is too greatly injured must be operated upon. Five years ago there were more surgeons opposed to the primary operation than there are physicians opposed to it to-day. There is no surgeon who opposes it, and many physicians who were earnest in their opposition five years ago are now positively in favor of the operation. In Osler's work we read that it is a surgical disease, and so in Anders and other authors in medicine and clinical medicine. It may be asked how to treat appendicitis if not surgically? I do not know. I think it is often best to give no treatment. Empty the stomach and give nothing. No purgation, but give an enema. Hot or cold applications can do no harm and may do no good. It is necessary in some cases to give opiates if we do not operate. But if you are an experienced physician or surgeon and consider these cases, you will seldom ever make a mistake in saying appendicitis should be promptly operated upon. My serious results have arisen from delay. Only last Saturday morning I was telephoned by a doctor: "I have another case of appendicitis." It began suddenly, no previous attack, in a boy ten years old. He was ordered sent to the hospital. The father was not at home, but he called me at seven o'clock and said he would send him in the morning. He reached the hospital about nine o'clock next day in a state of collapse. His radial pulse could not be felt, and there was the least evidence of possible relief, but I gave him the one chance. I opened the abdomen, and the bowel for ten feet was gangrenous. The appendix was found absolutely healthy, but Meckel's diverticulum, as large as my finger and as long, with the distal end attached to the mesentery near the ileo-cecal junction, had formed a loop through which ten feet of the ileum had passed and had become strangulated. I did not believe this was appendicitis, and so expressed myself before seeing the patient, the symptoms having been given by telephone.

I was called in another case and carefully examined the man. He had a pulse of 75, normalt emperature, and was vomiting a clear liquid. I said that he would be vomiting fecal matter in less than twenty-four hours. That was at 4 o'clock p. m., and at 1.30 a. m. he was vomiting fecal matter. He was sent to the hospital and operated on for extensive intussusception. The man recovered. Twenty-four hours later he might have been dead. So I say that even if we can not always diagnose appendicitis, we can find some condition that demands the attention of the surgeon.

Dr. Schachner asks the pertinent question, what we shall do when the case has gone beyond the primary stage? This is a question about which the profession is undecided. I believe in many of these cases that we get better results by waiting until the abscess has walled off, so we can open it and drain. I saw a case the other day in the practice of one of my friends. The appendix had sloughed off, and there was a gangrenous condition of the entire appendix. Adhesions were not sufficiently formed around that area to prevent leakage into the healthy tissue. The patient died within three days; had she not been operated on for three or four days longer she might have recovered. What caused the gangrene in this patient? She had the appendicitis for four or five days before I saw her, and the doctor had given her purgatives and a dose of croton oil, so evidently intense peristalsis hurried the sloughing of this appendix. Therefore, I am opposed to purgation in these cases. If pus forms and is walled off, you must operate; if not, and the timely stage has passed, then you can delay and afterward, when the acute symptoms subside, operate, and do not let your patient go on to another attack.

Dr. T. P. Satterwhite: Are there any statistics of the enormous number of cases operated on for appendicitis, the surgeon finding the appendix normal?

Dr. W. H. Wathen: There have been some instances of this kind, but there will be fewer in the future. It is rarely the case with an experienced surgeon.

Dr. T. P. Satterwhite: Do surgeons ever publish these statistics?

Dr. W. H. Wathen: I think they do.

Dr. Irwin: What was the mortality rate of Dr. Deaver?

Dr. W. H. Wathen: Dr. Deaver operated upon one hundred and forty-five males and eighty-three females, acute cases, all adults. His mortality was $15\frac{3}{10}$ per cent. But these operations were not in what is

called the primary stage. He operated upon every case that came to him, whether primary and timely or gangrenous. In one hundred and thirty-one chronic cases he had one death.

Dr. Irwin: How are you going to determine whether a case is one of appendicitis within the first few hours? Is the surgeon better able to diagnosticate it than the physician?

Dr. W. H. Wathen: I should say let the two together decide the matter.

Uterine Myoma. Dr. W. H. Wathen: This specimen was removed last Friday afternoon from a woman 35 years of age. It had been developing in a degree for four or five years but had grown very rapidly in the last few months, the woman having lost a great deal of blood and become anemic and feeble. The diagnosis of uterine myoma had been made by Dr. Kelly, of Lebanon, and Dr. Black, of Campbellsville. It was nearly symmetrical and as soft as an ordinary ovarian tumor or a parovarian tumor. Even when the abdomen had been opened it was with difficulty that we could reach a positive diagnosis, as the broad ligaments were pulled up and hung down as in pregnancy. The tumor was removed by using clamps on the broad ligaments, one out near the wall and one near the uterus and cutting between them, and one clamping the uterine artery. The peritoneum was incised around the cervix and dissected off, the bladder thrown aside and the uterus cut off at the internal os. The neck was then pulled up with a Jacobs forceps and cut away, making a complete hysterectomy. The vessels were not ligated until after the uterus had been removed. The vessels were then ligated with catgut, and the peritoneal surfaces sutured. A piece of gauze was placed from above into the vagina for drainage and to prevent the possibility of hernia into the vagina; this was removed at the end of four days. The woman made a good recovery.

Upon examination, this tumor was found to be myomatous and undergoing mucoid degeneration. I want to exhibit to you the ovaries, which were removed. One of the ovaries is large and peculiar; it is apparently fibro-cystic. The other is similar but not quite so large. It is astonishing how easily you can take out the neck of the womb when you have a large tumor without adhesions. The idea prevails that a large tumor is removed with more difficulty than a small one, while the truth is that many of the most difficult operations in hysterectomy are where the tumors are not large but wedged into

the pelvis. These large ones sometimes have no adhesions and give less trouble, if the woman is not weakened by disease of the kidneys or by hemorrhage. I never in my hysterectomies use a ligature until I have removed everything; then I ligate the vessels. Dr. Schachner was present at this operation. I suppose the tumor weighed about twenty pounds.

Dr. A. Schachner: I did not hear all the report, but was present at the operation. It was very nicely performed. The only thing I heard was with reference to the removal of large tumors, and I thoroughly indorse what was said. The great difficulty in these operations is when we have to deal with small tumors that completely fill the pelvis and still can not be delivered from the pelvis because you can not get around between the tumor and the pelvic wall. Any of the large tumors are very much more easily removed. The difficulty arises from not having space to work in.

Society Notes.

BRASHEAR MEDICAL SOCIETY.

Dear Doctor: You are respectfully invited to attend the regular quarterly meeting of the Brashear Medical Society, to be held at Bardstown, Tuesday, July 21, 1903. Morning session convenes at 10 o'clock a. m.

The following papers will be read:

Dr. Louis Frank, Louisville—Treatment of Typhoid Perforations.

Dr. J. Garland Sherrill, Louisville—Appendicitis: a Study of His Own Cases.

Dr. Adolph O. Pfingst, Louisville—The Tonsils.

Dr. A. G. Blincoe, Bardstown—Some Phases of Bright's Disease.

Dr. J. N. McCormack, Bowling Green—Address on Medical Organization.

Dr. O. L. Conrad, Wilsonville, will exhibit a renal calculi weighing nine drachms and give a history of its formation.

Drs. Rogers and Shepherd were appointed a Committee of Conference from the Spencer County Medical Society. It is very important that all members should be present at this meeting.

Dr. J. B. Crume, *President.*

Wiley Rogers, M. D., Ph. D., *Secretary.*

RUSSELL SPRINGS MEDICAL SOCIETY.

STANFORD, KY., July 15, 1903.

DEAR DOCTOR: It affords me great pleasure in behalf of the medical profession of country doctors to announce that the Russell Springs Medical Society will meet August 13th and 14th at Russell Springs, Ky. During this week the Russell Springs Fair will also take place. The hotel is commodious, best of fare, and rates reasonable. The best of medical waters, beautiful scenery, hunting and fishing, Cumberland and Green Rivers being only a few miles away. The country doctors of this section unanimously and cordially invite the general practitioners, surgeons, and specialists to be present and aid in this great meeting, thereby benefiting humanity and advancing science. The way to reach Russell Springs by L. & N. R. R. is to start the day before the meeting, come to Campbellsville, there take stage to Columbia and from there private conveyance to the Springs, or come on Cincinnati Southern to McKinney or Somerset and take conveyance to Russell Springs At the same time the Adair and Russell County Medical Societies will be organized. The doctors from these counties are especially requested to be present. The Russell Springs Medical Society had its origin in the Casey County and Central Kentucky Societies, and is composed of the counties of Russell, Casey, Lincoln, Adair, Marion, and Pulaski. Let everybody come and bring his rifle and fishing tackle. Rattlesnakes are sufficiently numerous in this section of the country for each member to supply himself with the necessary antidotes before he leaves home. Very respectfully,

J. G. CARPENTER, M. D.,
President, Counselor for 7th District.

J. B. SCHOLL, *Secretary*, Jabez, Russell County, Ky.

HARDIN COUNTY MEDICAL ASSOCIATION.

The Hardin County Medical Association met at Elizabethtown, July 9th, with seventeen members present. Dr. Bowen read a paper on Puerperal Eclampsia in the Primipara, and reported a case where the patient died six hours after the attack. This Society will meet again on August 13th, with district medical society at Elizabethtown.

THE AMERICAN PRACTITIONER AND NEWS

"NEC TENUI PENNÂ."

VOL. 36. JULY 15, 1903. NO. 2.

H. A. COTTELL, M. D., M. F. COOMES, A. M., M. D., LL. D., Editors.

A Journal of Medicine and Surgery, published on the first and fifteenth of each month. Price, $2 per year, postage paid.

This journal is devoted solely to the advancement of medical science and the promotion of the interests of the whole profession. Essays, reports of cases, and correspondence upon subjects of professional interest are solicited. The Editors are not responsible for the views of contributors.

Books for review, and all communications relating to the columns of the journal, should be addressed to the Editors of THE AMERICAN PRACTITIONER AND NEWS, Louisville, Ky.

Subscriptions and advertisements received, specimen copies and bound volumes for sale by the undersigned, to whom remittances may be sent by postal money order, bank check, or registered letter. Address

JOHN P. MORTON & COMPANY, Louisville, Ky.

THE following is the application for a certificate to practice medicine recently prepared by the Kentucky State Board of Health to meet the regulations adopted by the Board June 10, 1903:

Certificate No ----------

APPLICATION FOR LICENSE TO PRACTICE MEDICINE IN KENTUCKY.

----------Ky., ----------190--

To the State Board of Health, Bowling Green, Ky.:

GENTLEMEN: I hereby make application for a certificate authorizing me to practice medicine in this State under the provisions of "An Act to Protect Citizens of this Commonwealth from Empiricism," approved April 10, 1893, and being sworn, make the following statements in support of the same:

1. I was born at ----------on the----------day of----------18--
(Give place and State or country.)

2. My education preliminary to my first course of medical lectures was obtained in----------
(Give name of college or location of school or schools.)
and was evidenced to such medical college by----------
(Diploma, certificate, or examination. If the latter, state before whom, and indicate branches and extent.)

3. I studied medicine through four calendar years, and was in actual attendance upon lectures at the following-named school or schools between the dates given as follows:

First year at ------Medical College, from----day of----19----to----day of----19--
Second year at------ " " " --day of----19----to----day of----19--
Third year at------- " " " ----day of----19----to----day of----19--
Fourth year at------ " " " ----day of----19----to----day of----19--

and have literally complied with all the published requirements of said medical college as to education for admission, curriculum, tuition or fees, and with the requirements of

the Kentucky State Board of Health to govern the practice of medicine, adopted June 10, 1903, which requirements I have carefully read, except----------
I received a diploma from the last-named school on the----day of----19--, which I have this day exhibited to Dr----------, Medical Referee for the county, and I am the person named therein.

4. I have been examined before the following State examining and licensing boards, and no others----------and passed each examination successfully
(Give names of States and dates of examination.)
except as follows:----------
(Give names of States and dates of examination.)

5. I have practiced medicine ----years, as follows: From----------I----to----I--, at----------; from----------I----to----I----, at----------; from----------I----to----------I----, at----------, and at no other places.

6. I am a *bona fide* resident of this county, and it is my purpose to practice medicine here.

7. I practice or profess adherence to the----------system or school.

8. I am not and never have been an itinerant or advertising doctor, and hereby pledge my solemn oath never to become such in any capacity if under this application a certificate is issued me.

I enclose $2.00, the fee fixed by law.

Subscribed and sworn to before me by Dr---------- this----day of----------190-- Signed---------- Post-office---------- County----------

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RECOMMENDATION OF COUNTY REFEREE.

----------Ky.,----------190--

I hereby certify that Dr----------is a *bona fide* resident of this county, and that he is----------a reputable physician. I have this day examined his diploma, and find it as set forth in his application.

Signed----------
Medical Referee for----------County.

This may be left blank if the referee declines to recommend the applicant.

Dr----------of----------is the Medical Referee for----------County.

This application will be returned unless all the blanks are accurately filled. The affidavit will always be required. Do not forward diploma unless requested to do so by the Board.

Non-residents can not register under any circumstances.

The above application is in every way so complete that there can be no evasion of the law. Note the fact that it must be sworn to before a notary public, to which requirement there is no exception. Every student, therefore, will be required to make affidavit that he has complied literally with the requirements of the school from which he graduated, and with the requirements of the Kentucky State Board of Health as to education, curriculum, fees, etc. A student must, there-

fore, comply literally with the requirements of the school from which he graduated, but under the affidavit he can not register unless he has also complied with the requirements of the State Board of Health, and of course no applicant would dare perjure himself in a matter of this sort. This being true, it behooves a medical student to consider carefully the school he enters if he desires to practice medicine in Kentucky, or in fact in any other State, because if the Kentucky State Board of Health refuses recognition to the diploma of a Kentucky school, it is probable that all other State boards of health will do likewise. Under these provisions there can be no rebate in fees by any method, direct or otherwise, nor can a school offer a student any financial concessions, or pay him any sum because of the fact that he influenced other students to attend such school.

The character of the affidavit shows that the Board is determined to enforce the law absolutely, and we look for much better results in Kentucky and a higher standard of attainment for those who are permitted to practice medicine in the future.

It would appear that students who have failed to pass examinations in other States have tried to make Kentucky a dumping-ground for medical refuge, but this will evidently not succeed under the provisions of the new application, for the applicant is compelled to specify not only where he has practiced medicine, the length of time, etc., but also if he has failed upon any examination and on what subjects. This is a wise provision, for certainly Kentucky is not in need of incompetent doctors.

We bespeak the hearty endorsement and support of the laudable efforts of the Board by the physicians of Kentucky, for they should be interested in such matters as much as are the members of the Board, and a college that will not conform to these requirements must be forced by the Board and the medical profession to do so.

Special Notices.

Amenorrhea.—A very frequent condition for which the practitioner is consulted is suppression of the menses owing to exposure to a cold or to mental emotion. To restore the flow in these cases and to prevent the occurrence of uterine disease during the period of its re-establishment the administration of Hayden's Viburnum Compound is very useful owing to its soothing effect upon the nervous system, its antispasmodic action, and its power of reducing congestion, thereby preventing inflammation. In cases of true amenorrhea, such as occur from change of climate, overwork, malnutrition, anemia, chlorosis, phthisis, and other exhausting diseases, the systematic administration of Hayden's Viburnum Compound, in connection with general hygienic, dietetic, and supportive treatment, is of great benefit. It will relieve the distressing symptoms occurring especially at the time when the menses are due, such as neuralgia, flashes of heat and cold, colicky pains in the abdomen, and also promote the return of the flow owing to its tonic action upon the relaxed generative organs. If the amenorrhea be due to uterine disease, this preparation will be found a most efficient adjunct to other measures. It is especially indicated in cases in which the absence of menstruation is due to a poor development of the uterus, being administered in connection with faradism, dilatation, massage, and other measures.

Sanmetto as a Genito-Urinary Tonic and Remedy.—I have prescribed Sanmetto in a number of cases of incontinence of urine with gratifying results. I believe it to be a remedy par excellence in all cases of genito-urinary complaints. I have reason to believe that Sanmetto possesses aphrodisiac properties equaled by few remedies at our command. G. C. Snyder, M. D.

Moxahala, O.

The Law and the Doctor.—Amid the multiplicity of his daily duties, the physician has but scant time to cultivate more than a passing acquaintance with the collateral branches of his profession; the average practitioner, therefore, knows but little of the legal aspect of his relations to the body politic, or his rights and privileges, or his liabilities and responsibilities to his patients and the community at large. While pursuing "the even tenor" of his professional way, the doctor may suddenly be confronted with a summons and complaint in an action of malpractice, or may be called as an expert witness in a similar suit against a colleague. While it is not our intention to urge the physician to become his own lawyer, we believe that he should acquaint himself with the fundamental principles of medical jurisprudence, so that he may be reasonably well prepared to defend his own or his brother physician's rights and privileges on the witness stand. With a view of placing such information at the immediate disposal of the doctor, the Arlington Chemical Co. has arranged to issue, under the title "The Law and the Doctor" two forty-eight page booklets which shall present in condensed form and succinct style, an epitome of the essentially important features of (1) "The Civil Liability of the Physician for Malpractice" and (2) "The Physician as a Witness." These exceedingly practical monographs have been expressly prepared by an eminent member of the New York bar, who is well recognized by the legal profession as an expert in this special branch of practice. The first of these reference text manuals is now ready for distribution, and after a reasonable interval will be followed by the second monograph.

Copies may be had by applying to the above company.

THE

AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

VOL. XXXVI. LOUISVILLE, KY., AUGUST 1, 1903. NO. 3.

Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

DOCTORATE ADDRESS.*

RELATION OF ACADEMIC TO MEDICAL EDUCATION; THE TYPICAL PHYSICIAN.

BY WILLIAM H. WATHEN, A. M., M. D., LL. D.

Professor of Abdominal Surgery and Gynecology in the Kentucky School of Medicine; Fellow of the American Gynecological Society; Gynecologist to the Kentucky School of Medicine Hospital and the Louisville City Hospital, etc., Louisville, Kentucky.

While it is my pleasing privilege this evening, the fifty-third anniversary of the Kentucky School of Medicine, to deliver the Doctorate Address, I must bespeak your kindly indulgence, for I am but the follower of so many distinguished scholars that I must needs feel in no sense equal to the obligation assumed.

How well do we remember the great pleasure afforded at the annual commencements of the Kentucky School of Medicine in listening to the expressions of classical thought, philosophy, and science by such noble specimens of God's creation as the Rt. Rev. John Lancaster Spalding, the late Rev. John A. Broaddus, the Hon. J. Proctor Knott, Dr. Roswell Park, and others equally renowned! Nor do I know what subject to select that will be of interest or of real value, but in default of a knowledge of something better let me consider with you the kind and extent of education leading up to the study of medicine, the relation of the secondary school or the college to the professional school, the correct methods of teaching medicine and surgery, and then say a

*Delivered at Fifty-third Annual Commencement of the Kentucky School of Medicine, July 8, 1903.

few words about the characteristics of the typical physician in his personal, professional, and domestic relations.

The methods of education, both academic and professional, which obtain the best results in the prevention and cure of disease and the greatest excellence in physical, mental, moral, and religious development, and redounds in the greatest good to humanity, should not only be observed by sanitary and medical teachers but by teachers in all departments of knowledge. We will then try to decide what should be the minimum educational requirements leading up to the study of medicine that should admit a pupil to a medical college. This question is in a degree influenced by environments, and what may be best in one country may not be best in another, and the same requirements do not always apply with equal force to all sections of a single country, and this is especially true in the United States.

A standard too high may be as harmful as a standard too low, by excluding from the medical profession men of the best minds, who are deprived of the cultural training of a large and expensive university; hence to now adopt a universal requirement of a baccalaureate degree from a college or university for admission to a professional school would alike be an injustice and injury to the profession and the people. Therefore we must philosophically consider the conditions that underlie and control the educational system in this country leading up to admission to the professional school, for these conditions differ radically from what pertains in other civilized countries. In England, France, Germany, and other European countries the free public school system does not offer opportunities for an education higher than that obtained in the six or eight years of our best primary and intermediate schools, and the few who are permitted to pursue their studies in the secondary or so-called high schools are confined to the wealthy and aristocratic class, or to the well-to-do people of the middle class who are able to pay fees. Our system offers to any one a continuous course averaging from ten to twelve years from entering the primary school to the college or university, while in Germany the people's schools are intended primarily for the low and middle classes, and have but little connection with the high schools, which prepare students for the university. In Italy the connection between the elementary and secondary schools is apparently closer than in Germany, but practically the reverse is true, for 90 per cent of the children never pass beyond the third year's course in the primary schools. In France, because of the fees

charged and the difference in organization and purpose of the two classes of schools, the graduates from the primary schools (*écoles primaries élémentaire*) seldom enter the high schools (*lycées* and *colléges*). The same is practically true in Switzerland, and apparently the same reasons keep down the number of secondary schoools.

In Zurich, where the conditions of advancement are exceptionally good, of one thousand eight hundred and seventy-two graduates of the primary schools in 1899 only four hundred and eighty-two entered the secondary school, and probably the majority of these were not able to complete the course. The board schools of England, which are for and attended by the masses, are entirely different in spirit and in purpose from the public and grammar schools, which prepare students for the university. Stimulated doubtless by the privileges and results of our public school system of education, England has organized higher grade elementary schools which may have a course four or five years longer than the lower schools; and Germany has similarly sought to supplement the work of the primary schools by establishing *real* schools and higher burger schools, but in none of these schools is either Latin or Greek taught, and the courses do not lead up to the university. The same is true in results in the higher primary schools (*écoles primaries supérieur*) of France.

While our school system, in its inception, may have been in a degree fashioned after foreign models, and the establishment of our system of elementary education influenced by the description of European schools by Mann, Stowe, and Barnard, the difference between the American and European schools in organization and methods is now so great that in many features we can not and should not resemble those schools. We may in the future, as we have in the past, gain much from foreign schools and foreign literatures, but our highest ideals must result from indigenous influences truly American, and not ideals or practices found elsewhere.

The success claimed in the fixed courses in the German high schools in large cities to show the unwisdom of our elective courses is not sustained by facts, for in those cities there are several high schools whose curricula differ as widely as the various courses in a high school with us. It must also be remembered that the *lycée* of France and the gymnasium of Germany are intended for the few who may obtain a liberal education, while our schools supply the needs of all.

It will thus be conceded that in European countries but few pupils can be properly educated for admission to professional schools except

through colleges and universities, while in the United States they can be well prepared in our free public schools. But as the curricula in our primary, intermediate, and secondary schools differ, not only in various States but even in the different schools of each State, both in time and in amount and character of work required, we should, in accepting a high-school diploma as a minimum qualification for admission to the study of medicine, correctly understand and determine the time requirement, and in a general sense the amount and character of education given, being liberal in the allowance of electives.

In view of the fact that most of our States and cities in which the public school system is encouraged and fostered require attendance upon twelve years of not less than forty weeks each from the beginning of the primary to the completion of the secondary course, the licensing boards in the various States should at the proper time expressly provide that the diploma of no high school obtained in less time shall be accepted as a minimum requirement for admission to a medical school. The high school can never offer fixed or even elective courses to specially prepare the pupils for the several professional schools, nor can this be completely done in our universities unless those studies properly belonging to the academic and scientific department be subordinated to studies that have usually been included in the professional schools, and should be retained, if we are to have any unit of measure for the baccalaureate and professional degrees.

In this process of rapid evolution in education to meet modern demands the regulator necessary for perfect results has not worked with entire precision, having permitted the destruction or injury of many cherished precedents that time must restore and made innovations that time must destroy. This applies especially to our well-known universities in their desire to shorten the period of university residence by the substitution of professional work for the time-honored purely academic work—the work of the senior year—and in the University of Chicago in the two years of the senior college, being mainly professional, the pupil receiving the baccalaureate degree and advancing to the sophomore, or junior year of the four years' professional school, thus obtaining both the baccalaureate and professional degree within six or seven years, each degree indicating that it has been obtained after attendance upon four years of academic or professional work." It is also possible for a pupil whose qualifications will admit him to the junior year of the university to obtain in five—and in the University

of Chicago in four—years both the baccalaureate and professional degree. This is no captious criticism, but a desire to direct attention to a heterogeneous condition inconsistent with all classical conceptions of a university proper, and which the philosophic deductions of our most distinguished teachers and scholars will eliminate. "It is especially the province of the university to teach the science and art of education, its history and methods, and create a demand for more thorough professional training. It should produce a succession of scholars in philosophy and literature, but it is not required to supply practitioners in the professions, for if the university observes its purest ideals the professions will then take care of themselves." The degree of perfection of the work in primary and secondary schools, academies, and colleges may be measured by the perfection of the classical work done in the university, for as "the sun gilds the mountain-tops before its light floods the plains, so must educational progress spread from the summits," for the secondary schools receive their inspiration from the classical university, and will be what the university makes them. With the proper stimulus and encouragement of the university the secondary schools may finally complete the work of the freshman and sophomore years, thereby reducing the university residence to six years in obtaining the baccaulaureate and professional degree, thus eliminating the combined academic and professional course and give a unit of measure to both degrees.

In our efforts to adopt the best method of education preparatory to the study of the professions we often confound culture with instruction and wisdom with knowledge, forgetting that culture is to quicken, strengthen, and enrich the mind, while instruction furnishes the mind with knowledge which may be abundant but of little value unless utilized by wisdom to obtain the most perfect results which may redound to the greatest interest of humanity. Wisdom and knowledge are not identical, but related, and the latter can not be possessed without a degree of the former. Knowledge comes from without, wisdom lies within, but by cultivation may become comprehensive and powerful. Much knowledge may be worthless unless directed by the guiding-star of wisdom. Knowledge is the material out of which we construct the beautiful palace, but wisdom is the architect who combines this material in harmonious relation, resulting in architectural perfection. Then while in our preparatory education leading up to the study of the professions let us educate the mind to think rightly

and wisely. We should encourage the study of the classics, English, mathematics, and the sciences, but we should teach the mind how to digest, assimilate, and appropriate the accumulated facts, otherwise there may be much knowledge with but little wisdom, and no useful results. Teach the student the various channels and mechanisms by which knowledge may be obtained, and the mental processes by which it may be directed and utilized to obtain the greatest perfection and usefulness. Teach him philosophy—embracing psycology, logic, and ethics—and in a general sense the history of philosophers and philosophy, beginning with the Greek philosophy of Socrates, Plato, and Aristotle, then the pagan philosophy of Rome, and finally, through the various ages, to Abelard, Descartes, Kant, and others equally worthy.

The study of too much mathematics, as also some of the collateral sciences, should be discouraged, and the time may better be consumed in a careful study of English, Greek, and Roman history, and in the life and growth of language, especially the philology of the languages that may be traced to an Aryan or Indo-European origin. Of all languages except our native tongue the study of Latin is of greatest value, and excluding the commercialism of German and French, Greek should be next in order, for even an imperfect knowledge of these two languages will enable the student to easily understand the etymology of the many compound technical terms in the study of medicine which a knowledge of no other language will do. German can never be of much value in the study of the rich scientific literature of that language unless it can be read with ease and correctly translated, and this can not be done by the American student of four years' study of five hours a week in our high schools. Again, in the near future, all that France or Germany may discover or develop, if of real value, will be promptly given to us in a translation by scholars educated in German, French, English and the sciences; and even to-day we find many such translations in libraries throughout the country. Far be it from me to discourage the value of German and French and the great richness of their literatures, but to be of real value to the student of medicine the languages must be read with ease, otherwise the meaning may not be correctly understood, for the understanding of the text must be measured by the translation. The average student in German who graduates from our high schools may read German with comparative ease in the text-books in prose and poetry, but he can not read with ease books on technical and scientific subjects, and to do so at all he must constantly refer to his lexi-

con and make slow progress. This is true of our high schools in Louisville, with teachers acknowledged to be equal to any in this country, the course being four years of ten months each, five hours a week. This is also true in the State of New York, as may be seen in the following extract from a recent letter from Prof. Charles R. Skinner, State Superintendent of the Department of Public Instruction: "Graduates from our high schools do not, as a rule, read with ease the German and French languages." And my information, from extensive correspondence, indicates similar results from the various States. Of course, pupils of German parentage, or of special excellence, may read and write the German language with ease. It must also be remembered that German is a required study in but few of our high schools, and in many of them is taught but two years; therefore in adopting a minimum requirement for admission to a medical college neither German or French should now be demanded, but should be encouraged as electives. Then let us adopt but few fixed subjects in our examination for admission to a medical college, but many electives, from which selections may be made, requiring one third, or about seven out of twenty-one.

In accepting a baccalaureate degree for admission, we are forced to acknowledge that it is meaningless, has no significance, and indicates nothing if conferred by the majority of our so-called academies, colleges, and universities. And who is to sit in judgment to separate the chaff from the wheat, the bad from the good, the sinner from the saint? as all claim equal virtue. Then if this be true in accepting a baccalaureate degree for admission, the evil will be far greater in giving advanced standing or time credits for such degree. So let us urge upon the medical colleges and State licensing boards to give no time credits for work done except in a recognized medical college, and to insist upon a discontinuance of the combined academic and professional courses.

If this can not be accomplished now it will be in the near future, for the evolution is rapid in that direction, as is indicated in recent letters from the officers of the academic and arts department and the Medical Department of Harvard, Johns Hopkins, Yale, Cornell, Columbia, etc. None of these universities give a time credit for a baccalaureate degree, and Harvard and Johns Hopkins have no combined academic and professional courses, and I am sure neither Columbia, Yale, or Cornell will have after a few years, for they encourage their students to

attend four years of purely medical college work. The combined course was the child of necessity, to meet the demands for a shorter university residence, the medical profession refusing to recede from the requirement of attendance upon a four years' medical course. As it is hardly possible to increase the university residence, the academic and arts course must be finally reduced to three and possibly to two years, which may be done without lowering the standard by requiring applicants for admission to have done the work that has previously been included in the freshman, or both freshman and sophomore years. The secondary schools will then teach more months and more hours, with a better system and more condensed work, eliminating all that a broader experience proves to be unnecessary. The student may then graduate in medicine when he is twenty-three, twenty-four, or twenty-five years old—ten or twelve years in the primary, intermediate, and secondary department, two or three years in the college, and four years in medicine.

And I would now say to our alumni, upon whom the degree has just been conferred, that while they may feel that the Kentucky School of Medicine is very exacting in educational requirements preparatory to the study of medicine, and that they have obtained all the theoretical and practical knowledge of the science of medicine possible, after faithful college work for four years, still they must remember that they will never become so wise and successful in the application of their knowledge in the prevention and cure of disease as so to arouse the jealousy of the gods as to cause Jove to hurl them into the world of Pluto.

In our successful efforts in the interest of higher medical attainments let it not be said that we are "great because we copy the methods of our neighbors, but that we are rather a pattern to others than imitators of them," "remembering that good institutions are made by good men, and not good men by good institutions"; so in our education we should strive for the acquisition of noble character, that may sustain us in moral and religious rectitude in this life and protect us against the perils that may endanger our privileges for happiness in the next.

With your souls filled with a sense of justice and charity for your brother physician, never allow the wicked god of envy and avarice to lead you astray, but be truthful and honest in all your associations, recognizing the fact that it is equally wrong to commend what is blameworthy as to censure what is praiseworthy, and that your worth as physicians, and the worth of the medical profession, must be judged

by the degree of excellence of professional education and culture and the nobleness of character; "speech being adorned by truthfulness acts by virtue, and the soul by wisdom." Remember that while we see evil in others they may with equal justice see greater evil in us, and while they may not be perfect, they are not all bad. They may not meet the requirements of a critical test of morals and religion, but a fluoroscopic examination will not find their hearts enveloped in salamander slime, or embraced in the coils of the venomous serpent; they may not always be truthful or consistent, but they are not more rapidly changeable in their conduct than are the colors of the chameleon, or more varied in their moral obliquities than are the metamorphoses of the fabled Proteus; they may not be the brilliant light of the noon-day sun, but they are not the hideous darkness of the dreary night, and while not soaring angels they are not creeping snakes. Then while you need not honor them with crowns of jewels, you should not crucify them with the burning stigma of infamy.

In all your professional and personal relations be truthful, honest, and just, and never permit mercenary considerations to influence you in evil ways. But of all the sins that blacken the heart and soul of the physician there is none so heinous in the eyes of God or man as the cowardly, hidden midnight assassination of innocent unborn life. With what appalling realism does the immortal Dante picture to us Dis in the bottomless pit of hell holding in his three mouths the three greatest malefactors this world has ever known—Judas Iscariot, who betrayed his Lord and Master, and Brutus and Cassius, who betrayed their sovereign and their country. But could he have faintly appreciated what exists to-day blood would have wept from his heart because there was not a deeper and more scorching hell for those medical assassins of prenatal life, a life purer than and with the same soul as exists in the perfection of manhood. Do not imagine that the simple adoption of a rigid code of laws for professional observance will necessarily redound to the greater honor and glory of the physician, for experience has taught us the unwisdom of attempting to regulate private habits and manners by sumptuary laws, for each must follow the example of the good, the worthy, and the virtuous, which teach by association "the supreme value of all human labor and the principles underlying all social problems." We are often so blinded by what appears to be most pleasing to our senses as to forget that which is most favorable to the exercise of our noblest faculties. True manhood and happiness are

measured by the degree of abundance of truth, love, and righteousness, "for the soul can not be made great and free by affluence of wealth," but must find its pleasures in seeking truth, love, and the noblest things.

And finally, I would advise you to marry as soon as you have attained a position that will justify you in doing so, and do not be embarrassed or discouraged if the fair one you love beyond expression does not apparently show the same degree of ardor for you, but bring to your recollections the artful Galatea of Virgil: "She ran from her lover that he might follow her, and before she hid herself she wished to be seen."

Take a good, pure, and loving wife, with an abundance of physical, moral, and religious strength, but do not expect of her a total sacrifice, to please your unreasonable demands, of all and every sort of happiness in this life, and even of all hope for happiness in the life to come; nor need you expect of her that ideal and heart-devouring love that caused Nanna, in the intensity of her grief, to break her heart when she saw Baldur on the funeral-pile, and burn with him; or the degree of love that caused Laodamia to fall dead upon the palace floor at the presence of Hermes, who came to take away the shade of Protesilaus; or of Evadne, who after the death of Capaneus by the thunderbolt of Jupiter, cast herself on the funeral-pile and perished. Neither may you expect such absolute abnegation of self as is so typified in Héloïse for her Abélard, whose mind and soul became consubstantiated into his. But when you have taken to your bosom the ideal of your heart, love her dearly, speak soft and gentle words into her ears, and always remember that in calling her wife that if nature or religion can suggest a more tender, a more imposing, a more affectionate name, to that also is she entitled; and then may she call Heaven to witness "that should Augustus, the master of the world, offer her his hand in marriage and secure to her the uninterrupted command of the universe she should deem it more eligible and more honorable to be called your wife than the wife of Cæsar," believing that riches and power, when the gifts of fortune, have no merit, but that virtue gives worth and excellence.

Do not forget the conclusion of the conversation of the learned Aspasia with Xenophon and his wife, as related by Eschines, in her desire to effect a reconciliation between them: "When you have got so far as mutually to be convinced that there lives not a better man and

a more fortunate woman, all your thoughts will be directed to produce the greatest good; Xenophon will be happy in the reflection that he is married to the best of women, and she on her side that her husband is the best of men." But alas! if your wife deceives you in her love, or if her love grows cold and dies, and she heaps upon your head the severest maledictions of her mind and body, endure it all in silence and in patience, remembering the lowly submissiveness of the noble Socrates when subjected to the cruel test of Xanthippe, so tragi-comically told in Pope's "Wife of Bath," and the sweet smile of holiness on the face of the venerable Wesley when being dragged over the floor by his hair, into which his wife's fingers had become inextricably entangled.

And finally, do not put too much confidence in your power to resist the baneful influence of woman upon man, for the greatest, wisest, and best of men have fallen victims and suffered destruction. Did not our first mother Eve drive her husband from Paradise? And no one but Delilah was strong enough to vanquish the brave Nazarite, and though an angel had foretold his birth she delivered him to his enemies; and Solomon, the wisest of men, who had been chosen in preference to his just father to build a temple to the Lord, was in his old age so infatuated by the daughter of the King of Egypt that he became an idolater; and the severest of all Job's conflicts was with his wife, who instigated him to curse God. Can it then be possible that when the archtempter wishes to destroy a husband he employs the artifices of his wife?

And now that we are no longer to be associated as teacher and pupil, may I wish you an honorable life and a fidelity to your profession that may develop and guide the genius within you, so that when you have passed beyond the shores of this life you may leave behind you a renown and glory that will never grow old, but will be everlastingly recorded in the hearts of man, and then you will need no monumental memorial upon which to engrave your noble deeds, for the whole earth will be your sepulcher.

LOUISVILLE.

EXOSTOSIS OF ORBIT, WITH REPORT OF A CASE.*

BY D. C. BOWEN, M. D.

The slight attention paid to this subject is possibly due to lack of information as to the value of treatment and to the scarcity of literature upon the subject in our modern text-books, and partly because of disinclination for the burden of responsibility, which we are anxious to shift to our brother specialist. Exostosis is defined as being a circumscribed tumor consisting of newly formed osseous matter, and is described by Mackenzie as follows: Cellular, craggy, and ivory. The cellular exostosis grows from the periosteum, is not preceded by cartilage, seldom acquires a very large size, and often ceases to grow. The craggy is not so common. It may develop from the canelli or from periosteum, and is enveloped by a cartilaginous substance; the periosteum is imperfectly developed, and is recognized with difficulty. The center of this form of tumor is usually bone, but is sometimes cartilage. The ivory exostosis is exceedingly dense and of high specific gravity. In composition it does not differ much from ordinary bone. It originates in the diploe, pressing the compact tissue of bone before it and forming a round, smooth tumor.

This is the most frequent form of exostosis affecting the orbit, and has a tendency at the same time to invade the cavity of cranium. Exostoses of ivory formation usually grow from the flat bones, consequently the orbital region seems one of the favorite sites for this form of tumor. Chemically, it contains more of the phosphates and less carbonates of lime, also the portion of animal matter is smaller. They seldom grow very large, and do not produce much inconvenience unless by projecting into and compressing important parts. Clogent relates a case of this kind, growing from the pubes and perforating the bladder. They are frequently found projecting into orbit, producing exophthalmos, causing double vision, amaurosis, and eventually gangrene, but it is remarkable how much an eye is sometimes protruded and displaced by an exostosis and yet vision retained. It is often impossible, prior to operative procedure, to differentiate exostosis of orbit from other pathological conditions, such as encysted and other tumors, fungus of maxillary sinus, etc. The etiology is

*Read before the Kentucky State Medical Society, April, 1903.

obscure and may depend upon syphilis, tuberculosis, contusion, and fracture of orbit.

Treatment resolves itself into medicinal or surgical, according to cause. The writer hopes to further elicit discussion on this important and much neglected subject by reporting the following case:

Lucy C., white, aged twenty-four, single. The family history excellent. While attending school and witnessing a game of baseball four years since, was struck a blow in the supraorbital region by the bat accidentally slipping from the hands of the player, knocking her into an unconscious state for a short time. No further attention was paid to it until about one year later, when she felt a slight discomfort and sought the advice of an oculist, who prescribed an eyewash and syrup of the iodide of iron. She continued under the care of this gentleman for about two years. Exophthalmos was very easily observed in eighteen months from injury. The pain was slight till three months previous to operation, when it became severe. Double vision was complained of for two years prior to removal of tumor, but as the pain and discomfort was slight, save that caused by diplopia, she did nothing further for it until it had reached an immense size. The diameters, as you will observe in specimen herewith presented, measured one and a half by two inches, and weighed in a dry state one and a half ounces, besides several pieces that were lost at time of operation, estimated at one fourth ounce, making a total of one and three quarter ounces after being well dried. This specimen weighed when first removed two ounces and was covered by a membrane.

This tumor was attached to the orbital plate of frontal bone by a broad triangular base, whose sides measured about seven eighths of an inch, extending down to the extreme angle of bone or apex of orbit at the juncture of frontal with sphenoid, and developed by growing upward and outward, occupying all the available space, pressing upon the tissue in all directions, but less upon the floor. The lachrymal fossa was completely filled; the pressure was so great that the eyebrow was considerably elevated. The margin protruded beneath the external segment of the supraorbital arch and was plainly perceptible by inspection and palpation through the lid.

The inferior margin of tumor pressed upon the globe of eye and thrust it downward and outward, protruding it half an inch beyond its fellow, thereby lessening vision and causing conjunctivitis and pain. She was unable to close the lid. To my mind there was no

doubt as to its true nature; hardness, immobility, slow development, continuity with the bone and absence of pain and inflammation for so long a time, all sufficiently marked the case. My diagnosis of an osseous tumor of orbit was confirmed by my esteemed friend, Dr. J. M. Ray, of Louisville.

On the third day of May, 1902, after the strictest precautions in the minutest details of preparing patient, room, instruments, and dressings, chloroform having been administered, eyebrow shaved, and field surgically cleansed, I made an incision from the internal to the external angular process of the frontal bone, midway between the supraciliary ridge and supraorbital arch, cutting through the integument, orbicularis muscle, and palpebral fascia, continued the dissection into orbit and around the tumor, freeing the latter from the soft parts, with the head of patient resting in the hands of an assistant, to prevent concussion.

I applied small thin chisel to the tumor at the most accessible part, hoping to remove it by piecemeal, thereby saving the globe. By hard strokes with rawhide mallet upon chisel applied to transverse diameter, I cut off about one sixth of growth. After removing same and examining the remainder, I found that it was loose, but was unable to remove it. The force used is well illustrated by the bite from forceps shown in specimen. I now abandoned the hope of saving globe of eye, as the trauma thus produced it seemed would not warrant further effort. On making a transverse incision one half inch from external angle of lid the eyeball popped out from beneath the lid and was enucleated with ease, thus giving more space. I was able to apply chisel to the base of tumor, and after some effort I succeeded in freeing or rather in fracturing that part of frontal bone from which the growth sprung, which I had endeavored to avoid.

After getting a firm hold on the tumor with forceps, it took all my strength to deliver same. Wound was cleansed and dressed in the usual manner and healed by first intention; patient up in six days. Recovery uneventful; no pus, no meningocele through the aperture of triangular space caused by the removal of the fractured piece of frontal bone, which was ample for the introduction of my index finger, in order to examine for spicula and rough edges of bone as well as to satisfy myself that I had not injured the brain or its membranes.

The microscopical examination showed bone corpuscles, canaliculi, and rudimentary blood-vessels at base of tumor near its attachment,

otherwise of no interest. I wish to call your attention first to the size of growth, and secondly to the fact that there has not been an untoward symptom, notwithstanding the removal of so much of the orbital plate of frontal bone.

NOLIN, KY.

LACERATION OF THE BOWEL WITHOUT EXTERNAL EVIDENCE OF INJURY—REPORT OF A CASE, WITH REMARKS ON DIAGNOSIS.*

BY E. B. CLAYBROOK, M. D.

In this day of hurry and bustle, steam and electricity, and rapid transit of various descriptions, hardly a day passes that we do not pick up a newspaper and find a list of killed and wounded, due to some fearful accident. And how often in the list do we see a man's name followed by the fateful words, "Injured internally; will die"? This subject of internal injury is deserving of our best attention and the closest study, for only by a close study of all internally injured cases and better diagnosis can we, as surgeons, live down this time-honored phrase of "Injured internally; will die." In the past the evil prognostication of the reporter has, as a rule, been fulfilled in short order, and I believe that it is a stain upon the fair name of surgery that it is so.

I was called soon after midnight, October 6, 1902, to see an injured railroad brakeman. I found the man on a stretcher in the superintendent's office surrounded by the usual crowd, who gave the following history: He was standing on the step of a yard engine ready to make a coupling to a coach. When the engine and car came together the couplers slipped past each other and the bumpers caught the man through the back and abdomen. When released he walked fifty yards and was then placed on the stretcher. He was stout and muscular, 21 years old, and said he was not hurt to amount to anything; pulse 72, but high as regards the tracing it would have made, and the beat was not well sustained—no shock, slightly pale and complained of pain in the abdomen; no vomiting.

On examination there was not the slightest bruise or abrasion of the skin on the abdomen or back. The abdominal muscles were very rigid and tenderness was marked. On examination with the stethoscope

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there was complete arrest of peristalsis and the heart and respiratory sounds could be easily heard as low down as the hypogastrium.

A diagnosis of rupture of the stomach or bowel was made, and he was promptly removed to the hospital and the abdomen opened, the operation being begun about three hours from the time of injury. Incision was made in median line, from the center of the epigastrium past the navel. On opening the peritoneum about a quart of blood escaped. In overhauling the bowel to search for the rent a free end appeared at the opening with bilious matter escaping from the torn end. The tear occurred at the duodeno-jejunal junction, and the mesentery was torn through to the base and two branches of the mesenteric artery were found spurting, one of them so strongly as to soil the dress of a nurse standing near the foot of the table.

The ends of the bowel were trimmed and anastomosed with interrupted Czerny-Lembert sutures and the rent in the mesentery with continuous sutures; and after thorough flushing, the abdomen was closed without drainage.

The course was uneventful and convalescence rapid. He took liquid food by the mouth on the third day, and at no time was his temperature above 100° F. He walked from the hospital, a half mile, to his home on the nineteenth day and in two months resumed his duties as a brakeman on the road.

This kind of injury is so common that I have seen forty-two cases reviewed in our current journals within the last five months.

In one of the German journals for October, 1902, Neumann, of Berlin, reported a case of rupture of the duodenum from a fall across a barrel, with operation in six hours, followed by recovery. He reviews the literature and finds twenty-two cases—fifteen of which were operated on in from a few hours to three days, and seven of which the diagnosis was only made post-mortem. They all died. He concludes that there are no pathognomonic symptoms of rupture, but that most reliance is to be placed on the "board-like hardness of the abdomen."

In the Boston Medical and Surgical Journal for November 27, 1902, Nichol and Bottomley report six cases operated on early, with four recoveries. They conclude that the time of operation after the injury is the vital point and that every moment's delay after the fifth hour lessens the chance of recovery.

Brewer, of New York, in the Annals of Surgery for February, 1903, reports two cases of rupture of the intestine with two deaths, two of

ruptured liver with two deaths, two of rupture of spleen with one death, and one each of ruptured kidney, bladder and ureter, the last proving fatal. He lays stress on three symptoms in diagnosis—pain, rigidity and tenderness.

Robert LeConte, of Philadelphia, in the April Annals of Surgery, reviews five cases occurring in his own and others' practice, with three deaths. He concludes that unless we have certain evidence of perforation we should wait for reaction from shock before operation. He relies upon the facies, thoracic respiration, gradually increasing rigidity with abdominal pain radiating to the back and sides, vomiting after shock has ceased, distension, increasing pulse rate and secondary fall of temperature.

In the Railway Surgeon for November, 1902, there was a summary of five cases, in all of which the diagnosis was only made post-mortem. One of these, occurring in the practice of the editor, is worthy of note here: A boy lifted a small derrick from an express wagon. It tipped and fell across his abdomen. This occurred about 4 p.m., and was not followed by pain or shock. He went to bed, as usual, and was found dead in bed the next morning. Post-mortem revealed complete rupture of the bowel at the duodeno-jejunal junction with large hemorrhage.

We thus see from this slight review of only a few of our current journals within the last six months that this form of injury is of quite frequent occurrence and that if an early diagnosis is not made death is certain and speedy. That we need to be careful in our examinations and diagnoses of these cases is amply proven by the fact that of the forty-two cases noted only eight recovered; and the diagnosis was only made at the post-mortem in over one third of the cases. In fully one third of them the diagnosis was made so late that the chances of recovery after operation was absolutely nil. This leaves about twelve cases in which the diagnosis and treatment were prompt, with eight recoveries, or a mortality of 33⅓ per cent.

The question of life or death in these cases hinges on the diagnosis. If it is made early and followed promptly by operation, I believe we could cut the mortality down as low as it is for any other grave abdominal lesion not accompanied by pus.

The question, *What symptoms can we rely upon as a basis of diagnosis* in these cases? The list, as summarized by some of the writers, contains symptoms that do not, or can not, appear until some hours, or

even days, have elapsed, while clearly only those that supervene almost immediately are of any service to us if we are going to save the patient.

There are *two early symptoms* that I have not seen mentioned by any of the writers that show up at once, and to which I wish to call especial attention, as I believe them to be of great aid in diagnosis. They are:

1. Complete absence of peristalsis, as revealed by the phonendoscope. I have noted this symptom in several cases, and if it is present I think it is an almost positive indication of rupture, though its absence does not necessarily mean that there is no rupture.

2. The transmission of the heart and respiratory sounds, so as to be audible over the whole abdomen, at times even as low as the hypogastrium. I do not know the mechanics that enter into this, but I have noted it on several occasions and have never found it present unless there was rupture of hollow organs.

These two symptoms, with pain, marked tenderness and rigidity, at times so intense as to produce a board-like hardness—a rigidity involving the abdomen as a whole and not localized—thoracic respiration and history of contusion of the abdomen are, I think, sufficient to justify a diagnosis of rupture with reasonable certainty.

The presence or absence of shock can not be relied upon, as it is often absent in the worst cases until hemorrhage has produced it, and it is at times profound after a simple contusion of the abdominal wall. The characteristic facies is not an early symptom. I do not think we ever see it until peritonitis has begun to develop, and we should not wait for it. Vomiting may, or may not, be present, and if present it does not indicate serious trouble, except the late and persistent form, which if we wait to see will most probably prove the forerunner of a funeral. The pulse is variable and can not be relied upon for early diagnosis, because it may be quite good for a considerable time after a severe laceration with profuse hemorrhage, as noted in the case here reported, and then fail so rapidly as to cause death before anything can be done to repair the damage. Operation begun with a rapidly failing pulse is almost certain to end in disaster. Likewise distension should never be classed as one of the aids to diagnosis, for it seldom occurs early, but generally develops *pari passu* with the accompanying peritonitis. Loss of liver dullness I have never found in the cases I have seen, nor do I think it can occur early enough to be of any value in diagnosis, unless we are satisfied with a diagnosis only. If that be our sole aim, then why not

wait and make it absolutely certain on the post-mortem table, as in the cases referred to above?

So, then, I say, if we have a patient with a history of contusion of the abdomen, suffering pain, with marked tenderness and rigidity, thoracic respiration, absence of peristalsis and transmission of heart and respiratory sounds to the abdomen, with or without rapid pulse, with or without shock, with or without abdominal facies, with or without vomiting, with or without distension—then ought we to lose no time in confirming our diagnosis by exploratory laparotomy and deal with the conditions present as the findings demand. Opening the abdomen in these cases, if properly done, does not increase, but diminishes the danger, and we *never know* what is inside an abdomen until we see it. We had better by far open half a dozen too many than one too few.

The treatment needs no discussion here, for I believe this is one condition, at least, that is allowed to be solely in the field of surgery, and is not claimed to be cured by internal medicine.

CUMBERLAND, MD.

SOME OBSERVATIONS ON A CRUSADE MADE AGAINST THE MOSQUITO, IN TALLADEGA, DURING SUMMER OF 1902.*

BY B. B. SIMS, M. D.

Mr. President and Gentlemen: With no claims to be acting under other than well-known principles of insect destruction, putting forth nothing new in field or laboratory, and, in many instances, using ideas and plans of other and more distinguished investigators, we wish simply to describe an attempt made by a community or town to exterminate mosquitoes.

A few years ago the whole press of the country would not have printed in a month a column of matter on a subject that is now treated in serious and able articles daily. Of course, much of the writing is what one aptly terms "mosquito stuff," but it all doubtless helps in the battle which is now on, and the watch-word of which is: "The mosquito can and must be exterminated."

For the better understanding of why this war is on, and for the edification of those who have been too busy to post themselves on this sub-

* Read before the Alabama Medical Association, April, 1903. Reported in the Alabama Medical Journal.

ject, we deem it wise and prudent to give a short history and classification of a few of the more prominent mosquitoes of this section. So far as is known, all mosquitoes originate in water; that is, it has never been shown that any of them deposit their eggs anywhere except in water. And notwithstanding their larvæ live under the surface of the water, they are true air-breathers. They come to the top at intervals and push the breathing tube through the surface film of water, and air is taken into the trachea. All varieties of mosquitoes are rather rapid breeders, passing through several generations in the course of a season, going into winter quarters in both adult and larval stages. We have observed over-wintering mosquitoes on the underside of bridges, in basements, etc. Also have we seen the wiggler in ice-covered ponds, and even frozen into a lump of ice, and these, when thawed out, resume their growth with as much vitality as ever. Of the adult mosquito it is the impregnated female only that hibernates and lives over winter to begin business the next spring. In fact, the female is the business member of the family. It is she that does the blood-sucking; it is she that deposits the malarial poison. So marvelous a creature is she that she can raise a family of her own and still remain in her virgin state.

The mosquito larvæ can not live very long out of water; probably twenty-four to forty-eight hours in wet mud. The adult can live indefinitely—certainly for several weeks in the summer season. It was once thought that the female could take but one meal of blood, and that then she would busy herself with egg-laying the balance of her sweet life; but unfortunately for the victims of the bite, that idea is not true. She may live many weeks and bite an indefinite number of times.

It is only necessary in this connection to mention the three most common varieties that worry us in this vicinity.

The Culex Pungens is the most familiar species—our small blue mosquito, which enters the house about twilight, and sings melodiously and bites vociferously all night and takes her leave about daylight. The Culex Taniorhynchus, or common ring-legged mosquito, bites both day and night, but gives most trouble in the daytime. I have noticed that this variety of mosquito gives you no warning-song of its approach, but gently alights upon you, and almost before you are aware of it has received a full meal and taken flight. This variety and the culex pungens breed generally in clear water, in tubs, barrels, open cisterns, etc. They also thrive well in the filthy water about sinks, water-closets, etc. The Anopholes Macculipennis is the malarial-infecting variety, and breeds

mostly in sluggish streams, covered by a green scum, or in marshes protected by grass and underbrush.

When a given locality is mosquito-infested and it is the intention of the inhabitants to apply a destructive agent, the source of the mosquitoes, or the breeding place, must be found, and to find this breeding place it is very important to consider the question : How far do mosquitoes fly? And are they carried by the winds? Dr. John B. Smith, a well-known entomologist, says that mosquitoes do not fly far, nor will they rise and take flight during a brisk breeze. In the fall of 1901 we observed that a large residence, situated in the center of a large lot, was teeming with mosquitoes of the common ring-legged variety. The breeding place of these mosquitoes was caused by a leaky hydrant near the house. Every member of this family was simply spotted from the numerous bites. The occupants of residences on either side of this infested house were not at all troubled with this particular variety of mosquitoes. Then the idea that mosquitoes fly in upon us from a distance is erroneous. The Italian investigators say that experience has shown that where a house located in the center of a village or city is found to be infested by mosquitoes, search for the larvæ should be made, first in the house, then in cisterns or wells under the house, and, finally, in water-troughs, sinks, tubs and barrels in the yard. Last September I was called to see a lady whose face and hands were terribly scarred by mosquito bites. She chided me about the uselessness of my mosquito remedy, with which we had not as yet invaded the private premises of the inhabitants. I offered to wager almost anything that on her premises could be found the source of her pests. The characteristic rain-water barrel, teeming with thousands of larvæ, was found within a few feet of the window of her sleeping apartment.

The truth is, people do not take the trouble to make careful search, and prefer to jump to the conclusion that the mosquitoes have flown in upon them from a distance. The idea that they are conveyed by the wind keeps many people from making the effort to rid themselves of the nuisance, which can so easily be accomplished.

Unfortunately mosquitoes are often carried from one locality to another by railway trains ; especially is this true of the malarial infecting kind. It is said that mosquitoes were never known in Hawaii until brought over by sailing vessels from the United States. On these vessels they had bred more or less continuously in water barrels ; and to-day these insects are said to be very abundant in those islands.

In this connection it is probably well to speak of some unusual or unthought-of places for breeding. I have seen the larvæ in the rain-water caught by broken bottles, old tomato cans, etc. They will breed in closed sewers, entering by perforated traps. They will breed in rain-filled hollows of a tree at a considerable distance from the ground; in all uncovered water-tanks, and by the thousand millions in open cisterns. Last fall, during a few weeks of showery weather, I was called to investigate a mosquito-infected residence in a certain part of the city of Talladega. Other residents in the immediate neighborhood were not troubled by the pests. I searched two days for the origin or source of that infection. There was no leaky hydrant, no rain-water barrels or tubs; no upturned tomato cans or bottles to catch water. The top on the cistern was tight and well cemented to the bricks. I could not imagine where these mosquitoes were coming from. I began to watch the cistern more closely and observed mosquitoes emerging from small perforations in the bottom of a galvanized iron box used in conveying waste water from the pump of cistern back into the cistern. Still I could not believe that mosquitoes had entered through these perforations to deposit eggs. So I made an examination of the guttering and there found the source or origin of this infection. The guttering had sags in it, water would remain in these sags after rain, mosquitoes would deposit their eggs in this water, a shower within the next day or two would take the eggs into the cistern, and ———. A pint of kerosene poured into the cistern stopped the nuisance and did not affect the water, as it was pumped from the bottom. Dr. John B. Smith says that mosquitoes are found in great numbers in the pitchers of the pitcher-plant in New Jersey.

The prime cause of so much being said and written about mosquito extermination now-a-days is the positively proven fact that the anopheles variety is the host through which malaria is carried from one person to another. In yellow fever, the power of the mosquito to transmit the disease has been proven experimentally only. But this little knowledge has completely revolutionized the medical and sanitary practice for its control. No longer do we fumigate mail-matter, or bar out products from countries where yellow fever exists. If we fumigate ships, we do it to kill any mosquitoes they may harbor, and if a patient is on board it is deemed only necessary to keep him well screened from mosquitoes, and so long as he is so screened that these insects can not reach him, so long he can not be a center of infection.

It has been proven to demonstration that the species Anopholes Maculipennis carries the malarial fevers, whether tertian, quartian or estivo-autumnal. The plasmodium malariæ is an animal; a protozoan, small enough to live in a red corpuscle, and its life period may be two, three or four days, under proper conditions, for its development. When fully grown and ripe it bursts and liberates into the general circulation a great mass of spores, and just as this sporulation occurs comes the malarial chill. These spores immediately enter red corpuscles, and in due time there is another sporulation and a recurrence of the chill. At the time of sporulation, or immediately before it occurs, is the proper moment to administer quinine. This drug has the power to destroy these spores while in the general circulation, and before they re-enter the red corpuscles, but does not seem to have any effect on them while in the capsule of corpuscle.

In March, 1902, I induced the City Council to pass an ordinance relative to a mosquito crusade in the city of Talladega, and to make an appropriation therefor. On the 15th day of April, 1902 (one month later than it should have begun), we began applying crude petroleum (or what is termed by the Standard Oil Company, light fuel oil) to all stagnant pools, ponds, slow-running streams, in the city and adjacent to it. The inhabitants were requested by means of printed circulars, giving a short, concise description of mosquitoes and how they breed, to apply it in rain-water barrels and all stagnant water on their premises. This application was made every fifteen days at the rate of one ounce to every fifteen square feet of water surface. Notwithstanding the fact that to the people of Talladega the mosquito is a very commonplace insect, and is known by sight to all, and has been with us quite a while, very little was known about how the insects live, how they breed, how they carry disease and how easily they may be destroyed. These facts being set forth in the aforesaid circular seemed to arouse quite an interest in rank and file of the people in general, and the fight against the mosquito was begun with much zeal. Of course there are many who will be careless and must be watched.

Through the city of Talladega two very sluggish streams course over very crooked bed-ways. Along the banks of these creeks mosquitoes were in the habit of breeding by the millions, and life to the inhabitants living adjacent to these streams was almost a burden on account of the countless thousands of these blood-sucking insects which invaded the houses day and night. But last season, we are proud to say, this in-

fested portion of the city had fewer mosquitoes than any other part, due to the fact that we watch this part more closely and applied the remedy thoroughly.

Manner of Campaign. A petroleer or man takes a bucket of the oil and, with a small dipper, dashes it on the stagnant water surface at the rate of one ounce to every fifteen square feet of water surface. But this way of applying the oil is wastful and slow. A much better and a more economical plan is to use a knapsack pump to spray it on. The soft breezes soon spread the oil all over the water surface, and when the wigglers put their breathing apparatus up through the water-top for air they get coal oil, which is sure death to them. The adult female will also get a dose and death when she attempts to deposit eggs on water so treated. I have seen many dead adult mosquitoes on the thin film of oil which is soon formed on the water after the application.

Cost of Crusade. I kept a strict account of the cost of this crusade. We used 750 gallons of light fuel oil at a net cost of 12 cents per gallon, which is $90.00 for oil. The applications were made twice per month, in April, May, June, July, August, September, October, and once in November. It required on an average four days for each application, making in all sixty days. The petroleer was paid $1.00 per day, making $60.00 for labor. This, added to the cost of the oil, aggregates a total of $150.00 for the crusade. Of course, as is often the case, my services went free.

We could have secured kerosene oil at 12 cents per gallon, but we used the other oil because it is thought that the crude oil does not evaporate as quickly as the kerosene, and consequently an application lasts longer. We think that with careful work for three or four years mosquitoes can be entirely and completely exterminated in this vicinity. However, it is a thousand times better to do the work every year perpetually than to suffer the inconvenience, pain and disease due to the bite of this bloodthirsty insect.

Talladega, Ala.

PULMONARY ANÆSTHESIA.*

BY W. A. BRYAN, A. M., M. D.,

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The purport of this paper shall be, not to give an elaborate and detailed treatise on anæsthesia and anæsthetics, but to present in a simple, yet practical, way some interesting and useful facts concerning the administration of anæsthetics, the action of patients under their influence, the signs that are of value to the anæsthetist, and the means to be used in emergencies that may arise during anæsthesia. In addition a report of some recent work with a most excellent new anæsthetic shall be given.

Texts are replete with a lot of stuff on anæsthesia, and men have thought it advisable to copy, without the audacity of questioning, the statements made in them. For that reason this paper shall not attempt text-book discussion, but, as much as possible, avoid reference to the facts presented there.

A man who is bound inseparably to one anæsthetic for all purposes will do mischief with it, no matter how small a death-rate that particular drug may have. There are contraindictions clearly laid down to ether as well as chloroform, and, unless cognizance is taken of this fact, somebody must suffer. This statement is made, because, after a surgeon has become thoroughly used to one drug, or has seen some other do mischief, he sometimes allows himself to become tied to one, to the complete exclusion of the other, regardless of indications.

How important it is that one should understand thoroughly the action of anæsthetics, and their proper mode of administration, will be impressed thoroughly on an observer who notices carefully the blunders made by men attempting to give anæsthetics, and the quandaries into which they are thrown by unusual circumstances arising. The day is gone when anæsthetics are to be entrusted to laymen—too much responsibility for life and suffering rests upon this part of the work; besides, opprobrium always falls more or less heavily upon the surgeon under whose care a patient dies, no matter if another is giving the anæsthetic. It is proper here to add, too, that any man incapable of selecting an anæsthetic properly, is incapable of properly giving it.

*Read before the Middle Tennessee Medical Association, November 21, 1902. Reported in New York Medical Journal.

There enter into anæsthesia elements of danger from complications arising during the process, which embarrass the anæsthetist and sometimes the surgeon, too, very much. The proper comprehension of these, and a thorough mastery of the various means of averting or relieving them, is absolutely necessary if we would avoid humiliating accidents.

Patients who have suffered long from bronchitis are prone to secrete excessive quantities of mucus, which, by accumulating in the throat, becomes a hindrance to respiration and may even cause cessation of that function. One patient, in my own experience, completely ceased to breathe and had to have her head lowered and the mucus mopped from her throat. The anæsthesia was resumed with chloroform with no further trouble. If chloroform is really contraindicted in these cases, then the advisable course is to give hypodermically ¼ grain of morphine and $\frac{1}{50}$ to $\frac{1}{75}$ of a grain of atropine before anæsthesia has commenced. This symptom is then prevented or alleviated.

Paralysis of respiration occurs, following overcrowding of the anæsthetic, particularly ether. This can be avoided by remembering that the purpose of anæsthesia is to render patients unconscious and in their reflexes irresponsive to stimuli; when this is barely accomplished, all is done that needs to be done. When ether is given in quantities sufficient only to produce surgical anæsthesia, paralysis of respiration is not to be expected, but results only from excessive or improper administration. Artificial respiration, from 15 to 18 per minute, must be kept up till function is resumed.

During the second stage of anæsthesia, owing to general muscular rigidity, the blood is sometimes squeezed out of the veins and into the vena cava and the heart, so that the right heart is distended until contraction can not take place, and death ensues. The anæsthetic must be suspended until rigidity ceases, or must be exchanged for chloroform until this stage passes off, when ether can be resumed. Fortunately, this so-called second stage of anæsthesia can so frequently be avoided that some are asserting that there is no second stage, or stage of excitement, essential to the administration even of the drug that has produced it with such unvarying certainty, viz., ether.

It is a matter of record from hundreds of cases that it is possible for well-trained anæsthetists to produce surgical anæsthesia without being hampered by all the common train of unfortunate symptoms belonging to the stage of excitement, without requiring three or four assistants to hold the patient on the table. This unfortunate, yet often necessary,

procedure delays the anæsthesist, leaves the patient sore, and is an annoyance to the surgeon and all others concerned.

The means at our command to prevent the second stage are very easy and simple. The patient's confidence should be gained, if possible, by assurance of the ability of the anæsthetist, not in so many words, but by manifesting the proper interest in the patient, and by making the proper, not to say necessary, examination before beginning. The patient may then be told frankly that the desire is to prevent struggling as he goes to sleep. Have him fold the hands across the chest and squeeze them tight ; tell him every now and then to squeeze his hands. Begin the anæsthetic by placing the cone over the face without any application, then after a breath or two apply a drop or two of ether ; then two or three drops, gradually increasing the amount of each application until a sufficient dosage is reached. Every half minute, or oftener, suggest to the patient to hold his hands tight, keeping his mind thus diverted from the anæsthetic. I have seen this done and have tried it successfully. Not every case will succeed, but I have been amazed at the results, and have seen the patients time and again go to sleep without a struggle or a murmur. But the room must be quiet ; you can accomplish no good results if the room is full of people talking. I have seen one patient in the beginning of anæsthesia held by four men ; I had them turn him loose and told him he had promised to hold his hands for me. Instantly he resumed that posture, became perfectly quiet and did not move again until he came out of the anæsthesia.

Death occurs by paralysis of the heart from overdosage, and from operations, especially in the region of the fifth nerve, in incomplete anæsthesia ; in the former case, prevention can be secured by care on the part of the anæsthetist, as by removal of the cone from the patient's face when the sphincter is being divulsed, which causes a deep inspiration, and possibly an overdose ; in the latter case, by care on the part of the surgeon not to operate until complete anæsthesia is secured. These statements are especially applicable to chloroform.

Death under anæsthesia occurs in patients from paralysis of the heart during complete anæsthesia. in which case it is instant ; from damming of blood in the right heart during the second stage of ether anæsthesia, when it is slow and preventable ; from paralysis of the heart due to operative interference in incomplete anæsthesia, where it is instant ; from asphyxia due to obstruction of the respiratory passages by the tongue, enlarged tonsils, mucus, or from interference with respiratory muscles ;

and from combined shock of anæsthesia and operation. In the last two it is slow and usually preventable.

In all these the procedure is clear, with possibly one exception. The rule for position in impaired respiration or heart function is to lower the head to allow a freer flow of blood to the brain and the heart, but in all those cases where an intra-abdominal obstruction to diaphragmatic function is causative of the symptoms, such as abdominal tumors, the proper course—the only course in the presence of these symptoms—is to elevate the head and relieve the pressure of the tumor on the diaphragm and heart. I have had narrated to me two cases of this kind; in one the head was elevated and the symptoms improved at once; in one the head was lowered, and immediately the patient succumbed.

Certain diagnostic signs appear during anæsthesia, and if observed, are a certain cynosure to the anæsthetist; unobserved, they leave him wandering in a wilderness of darkness. As I have said already, the aim of the anæsthetist should be to keep the patient barely under surgical anæsthesia; all beyond that is uncalled-for danger. But how are we to know where we are? When conjunctival reflexes are gone we are reliably certain of surgical anæsthesia. The patient's eyes look straight ahead and are steady; the pupils are moderately contracted, about one-eighth of an inch in diameter, and respond to light. On giving too much or too little of the anæsthetic, particularly ether, the pupils dilate. Is this dilation a signal of danger or of too little of the anæsthetic? One of our leading texts affirms that we must stop administering, wait for reflexes, and begin again. But that is unnecessary. Close the eye, open it again in the presence of light; if the pupil reacts to light, the patient is safe and more ether can be given; if the pupil will not respond to light, too much ether has been given and we must wait for the pupil to respond. Under complete anæsthesia, when the steady straight-forward stare of the eyes is supplanted by a nystagmus, however slight, it means that the patient is passing out from under anæsthesia and needs another dose. In surgical anæsthesia respiration is regular, full, and stertorous, if ether is given, all respirations having about the same depth; a deep, sighing respiration nearly always precedes the appearance of reflexes, and should be recognized as their forerunner. The general circulation is to be watched in all cases, as it is an index to the oxidation of the blood and the condition of the heart.

The disadvantages of ether and chloroform as pulmonary anesthetics, and the death of a patient now and then manifestly due to the action of

these drugs, the time required to anesthetize a patient, the time required for him to regain consciousness, the nausea and vomiting following the safer of these, sometimes also the other, the preparation necessary for them, the long period of thirst and distress succeeding the anesthesia—all these objections deter the physician from administering an anesthetic, especially at his office, and the patient from taking it anywhere, thus causing pain to be produced, imperfect examinations to be made, and incomplete treatment to go from the doctor's hands. What we needed was something safe, quick in administration and recovery, perfect in anesthesia, devoid of unpleasant after-symptoms. In ethyl chloride we seem to have all these and more. Nitrous oxide was hailed for these reasons, but rigidity, cyanosis, muscular twitchings, and short duration of anesthesia, or, on the other hand, very expensive preparation for its use, have kept it from being popular among physicians. But ethyl chloride properly given produces anesthesia in from fifty seconds to two minutes, maintains it as long as necessary, restricted, it seems, only by the cost of the drug, and allows the patient to regain consciousness and converse in from two to four minutes, and to get up and go his way unaided in a few moments. It is asserted that five operations can be done under ethyl chloride where three can be done under nitrous oxide, the anesthetic being withdrawn. No symptoms come up in the course of administration to suggest danger; the pulse and respiration are practically unchanged in old and young, in weak and strong, with or without heart lesions. Nausea is sometimes present for a few minutes and then passes away; rarely is vomiting present, and when it is, it passes off briefly. The drug is so evanescent it can not be kept long in the system unless constantly inhaled. After its administration in a room no ill odor is left to disturb the delicate sensibilities of following patients. Only one death has been reported, and in that case the patient had disease of the coronary arteries of the heart, and hence death was not attributable to ethyl chloride. Two others have been noted, but certainly were due to other causes. It has been administered some thousands of times (I have one report listing 12,436) and no other ill report has come to my ears, except that some have said 5 per cent of patients can not be anesthetized with it. That depends largely on the method of administration. Not enough has been done with this wonderful drug yet to say that there is no danger in it. Potter ranks it with ether as safe for general anesthesia, while he calls chloroform dangerous—after announcing 5,000 successive anesthesias without a death. We must watch it and wait until

hundreds of thousands are anesthetized with it before we assert it to be absolutely safe, but so far everything points in that direction. I should rank the mortality as follows: First, chloroform; second, ether; third, ethyl chloride; fourth, nitrous oxide. Resuscitation from paralysis of respiration is more easily effected in ethyl chloride anesthesia than with the other anesthetics.

The method of administration is through a tight closed cone that allows a spray of the liquid to run upon a piece of gauze, over which all the inhaled air must pass, and containing an outlet valve, so as not to permit waste by expiring through the same opening. The nitrous oxide cone of the dentists is very good.

To illustrate what can be done with ethyl chloride: The quickest complete surgical anesthesia was obtained on a child in fifty seconds. The quickest enucleation of an eye was four minutes from beginning of anesthesia. Questions were answered by this patient in two minutes after the anesthetic was withdrawn; but that is about the usual period of time. I have used it for the examination of fracture; for the opening and packing of a bubo; for the amputation of a toe; for operative treatment of ectropion; for examination in hip-joint disease; for ligation of the supraorbital artery to check aneurysm within the orbit; for dilatation and curetting; for enucleation of eyes and for stricture. The longest period I have kept a patient anesthetized was nineteen minutes. Ware, of New York, has held one forty-five minutes, one fifty minutes, and one seventy-five minutes. The only difference noted in my cases was that it required a little longer to regain consciousness after the prolonged anesthesia.

It is proper here to say that not every case is completely relaxed by it, and ocular reflexes are not always destroyed. Otherwise, however the anesthesia is complete.

Nashville Tenn.

THE ANTISEPTICO-ANESTHETIC METHOD OF TREATING PULMONARY TUBERCULOSIS.*

BY AMBROISE T. HOLLY, M. D.

There appeared in the issue of May, 1899, of the Medical Review of Reviews my proposed antiseptico-anesthetic method of treatment for pulmonary tuberculosis, respectfully submitted to the appreciation and experimentation of the boards of health of the United States.

Since then I have had the opportunity of employing the method in a goodly number of cases with as many gratifying results as unfortunate failures, and the object of this paper is to give an impartial *résumé* of my experience with the said antiseptico-anesthetic treatment.

This treatment affords very gratifying results in incipient phthisis, demonstrable even from the start by a diminution of cough, the suppression of hectic fever, gain in weight, and the improvement of the circulation, as shown by the increased force of the pulse and the color of the face.

Owing to the known difficulty of diagnosticating incipient phthisis without a bacteriological examination of the sputa, my recorded observations for this class of cases bear on such as have presented the combination of the three following conditions:

1. A recent history of a tuberculous patient in the same family.
2. Hectic fever.
3. The physical sign of a unilateral bronchitis.

These patients, submitted to an antiseptico-anesthetic course of treatment, are soon rid of their hectic fever and experience a considerable diminution of their cough after three or four inhalations or more administered at twenty-four hour intervals, repeated if needs be as often as the hectic condition reappears. Meanwhile and during a considerable period after the suspension of all inhalations, the physician should attempt to improve the digestive organs, so as to insure the proper assimilation of food and the absoption of drugs destined to re-establish the equilibrium of the over-excited or depressed nervous forces. After a period of time, varying from one to two months, these patients are practically well, although presenting, on auscultation, a roughening of the respiratory murmur over the affected areas and a predisposition to the ills of their *locus minoris resistentiæ*.

*Reported in the Medical Review of Reviews, May 25, 1903.

Patients in the second stage of tuberculosis are also surprisingly benefited by this method of cure in regard to symptoms and arrest of the morbid process. As in the preceding cases, the hectic fever is soon controlled, but not to the same extent as in the earlier stages. On the contrary, not infrequently we encounter a subnormal continuous temperature (35°5′ to 36° C) during a few days, followed by a slight but sudden elevation of the temperature, after which the hectic conditions again obtain. These variations in the temperature chart may continue for four or five months before being definitely controlled by inhalations systematically administered from time to time, reinforced by tereben and other stimulant expectorants. The cough is also subject to periods of exacerbation during these thermic fluctuations. Physical examination may discover in the meantime certain progression in the pulmonary lesions (cavities that have formed in the places of dull areas). Nevertheless the subjective symptoms will have been ameliorated if the antiseptico-anesthetic inhalations have been systematically continued. Undoubtedly these inhalations can not restore profoundly diseased or already necrotic tissue. I have repeatedly observed, however, that treated patients who subsequently developed cavities, and who also still complained of a dry and annoying cough without expectoration, are benefited by this method of treatment.

Employed in the third stage of phthisis, this antiseptico-anesthetic medication offers the following characteristics: First, and even during the first sittings, the inhalations provoke heavy spells of coughing, which is rather exceptional in the first and second stages. After the first sittings the temperature has a tendency to rise, and generally we have periods of very high fever, which are best controlled by shortening the intervals between the sittings. If these are then administered twice daily (morning and evening), after a few days we often succeed in maintaining an almost normal temperature chart unless it be then subnormal, as in the above-mentioned cases.

Unless continued systematically during many weeks the antiseptico-anesthetic method of treatment can unquestionably hasten the end of phthisical patients in the third stage of consumption. Evidently this is due to the great need that the lungs be thoroughly antisepticized after the liberation of microbes and the disintegration, if not the dissolution, of caseous matters as produced by the anesthetic agent employed. The coughing spells provoked by the inhalation, and the active febrile movement that succeeds to the same, seem to be easily

explained if we bear in mind this dissociation which permits the liberation and favors the dissemination of the bacilli of Koch, and consequently the tendency to the generalization of a process formerly localized. I can not otherwise explain the analogous phenomena succeeding Koch's tuberculin inoculations, for which I have recommended the subsequent antisepsis of the lungs by the means offered by the antiseptico-anesthetic method.

Previous to any autopsy, no positive explanation can be given of the true causes of the localized pain and the long-continued period of coughing that follows some unquestionable arrest of the morbid process under consideration without taking into account probable adhesions, rendered possible by granulating lung-surfaces or the contractile effects of cicatricial tissue in the lung.

Patients in the advanced stages of pulmonary tuberculosis often present certain mechanical conditions which hinder the discharge of pulmonary *debris* from the lungs. This was clearly demonstrated in the case of a patient that my brother and colleague, Dr. Arthur Holly, turned over to me for experimentation.

This woman, in the last stages of consumption, reduced to a very low degree of malnutrition, presented among a host of tubercular symptoms the thermic hypernormal variations of an advanced infection. The first inhalations acted exactly as in other cases of tuberculosis of the third degree, and by being continued twice daily, in less than a week the temperature was markedly controlled, with a rather subnormal tendency. Nevertheless, any attempt at a prognosis had to first be met by the two following questions: Can she live any length of time with the small amount of seemingly active lung-tissue? How can the thoracic cavity be relieved of the accumulated pulmonary detritus, bearing in mind the solution of continuity in the lung-tissues? The first question was answered in the negative before the death of the patient. The second can only be determined by experimentation with a patient who may be occasionally inverted, feet uppermost, after inhalations pushed sufficiently far as to obtund epiglottic sensitiveness and prevent spasms of the glottis. Of course, in all such long-standing cases, after the tubercular process has been permitted to invade the pulmonary and mediastinal ganglia, these inhalations can have no direct influence on the morbid condition in those glands.

Certain experimental results are sometimes due to definite ways and means. I, therefore, beg to be permitted to submit, in concluding, the

following formulæ and *modus operandi* that have been employed by me in my experimentations, with no untoward effect except it be that the larger doses of formalin occasionally produced slight burning in the nostrils during inhalations:

FORMULA No. 1 (1899).

Essential oil of cassia, ... 1 gramme;
Tereben, ... 1 gramme;
Chloroform or sulphuric ether, q. s. ad., ... 100 c.c.
M. S. A.
S. To be administered by the physician.

FORMULA No. 2 (1900).

Essential oil of eucalyptus, ... 1 gramme;
Essential oil of cassia, ... 1 gramme;
Tereben, ... 1 gramme;
Formalin, ... 1 gramme;
Chloroform or sulphuric ether, q. s. ad., ... 100 c.c.
M. S.
To be administered by the physician.

FORMULA No. 3 (1903).

Essential oil of cassia, ... 1 gramme;
Tereben, ... 3 grammes;
Formalin, ... 0.50 centigramme;
Alcohol, ... } ãã. }
Chloroform, ... } q.s. } 100 c.c.
Sulphuric ether, ... } ad. }
M. S.
To be administered by the physician.

The patient being placed in the recumbent position, 10 to 15 cubic centimeters of any of the above formulæ are administered per inhalation by the physician in like manner and with the same precautions as for anesthetizing up to the second stage, beyond which it is hardly necessary to go. Use preferably an ordinary chloroform mask, which has not to be removed from the face for each addition of the inhalant. It is best that the patient be not in a fasting condition.

PORT-AU-PRINCE, HAITI.

THE TREATMENT OF CANCER BY PHOTOTHERAPY.*

BY DAWSON TURNER, M. D.

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Comparison between the physical, pathological, and clinical distinctions of non-actinic, actinic, and Röntgen rays. In a paper read before the Society, in 1894, the author referred to the treatment of goitre in India by the red iodide of mercury ointment and the rays of the sun, and suggested in explanation that the effect produced was due to the radiant heat rays. The results of this treatment were extraordinary; 60,000 natives were treated, and a cure was almost always effected. A few years ago Finsen, who had also been experimenting with the red end of the spectrum in smallpox, turned the attention of the medical world to the curative effect of the other end of the spectrum, namely, the blue-violet and ultra-violet rays.

A good deal is known about these forms of radiation, for they do not differ in any physical aspect from ordinary light. The red rays are longer, they produce the sensation of heat, and they do not affect the ordinary sensitive silver salts; the violet rays are shorter, they are powerfully actinic, and they scarcely affect the temperature sense. On the other hand, the red rays penetrate the epithelium and softer structures, while the violet rays have but little penetrative power, and are absorbed and stopped by the blood. What the Röntgen rays are, nobody yet knows. They do not, however, behave like ordinary light, and opacity to the X-rays is a question of density; all light bodies are transparent, thus they pass through the skin and soft structures with the greatest facility, but they throw shadows of the bones. They appear to have no bactericidal effect, while ultra-violet light has a marked effect in destroying bacteria. The pathological effects of the rays are also different. The actinic rays produce very quickly—within eighteen hours—a transitory erythema, consisting of an inflammatory dilatation with infiltration and edema. In the case of lupus, MacLeod found that the rays caused a degeneration of the granulomatous tissue and the destruction of its vitality, but that in the case of healthy tissue their effect is negligible.

The Röntgen rays produce more profound vascular and trophic changes (Garsman, etc.), particularly if soft tubes be used, but this effect is cumulative and takes time to be established; there may even be a

* Reported in the Edinburgh Medical Journal.

retardation of a fortnight or more in its appearance. Hyperemia appears, and the skin may assume a deep reddish-violet hue, a purulent dermatitis may follow, attended sometimes by intractable ulcers, and even by cancer, as in three cases narrated by Henry Morris and Allen and White. The minute changes consist principally in degeneration and vacuolation of the endothelium of the blood-vessels, with thickening of the intima leading to thrombosis, in disintegration of the elastic tissue, and in disappearance of the hair follicles and sebaceous glands. I venture to suggest the following theory as regards the action of the radiation in cases of cancer. As the X-rays will destroy, if pushed, by a species of burn the healthy skin and subjacent tissues, it is probable that they will more easily and rapidly destroy the lowly organized malignant growth, and our aim should therefore be to so time the exposures as to disintegrate the abnormal without damage to the normal. A most important point in treatment is the proper selection of a tube for the particular case, for only those rays which are absorbed can produce an effect. Thus, for superficial growths, with ulceration, a very soft tube should be chosen; if the skin be intact, a more penetrating tube; while for internal growths, a tube yielding still more penetrating rays should be used. By these means I believe we can successfully attack even deeply situated cancers. I have only employed the Finsen light in the treatment of cancer for subcutaneous nodules, where the skin was intact and where the necessary pressure could be borne; and in these cases it is very successful (refer to Mr. Cotterill's case, exhibited before the Society on May 7, 1902, of multiple scirrhus, in which the cancerous nodules disappeared as if by magic).

(*a*) *External cancer before ulceration* may then be treated either by the Finsen light or by the X-rays; and I prefer, as a rule, the Finsen light.

(*b*) *After ulceration* the Röntgen rays should be used.

(*c*) *For internal cancer* the Röntgen rays only can be used.

The clinical results of the treatment are (1) To remove or diminish the pain. (2) To loosen adhesions and to cause the disappearance of the contracting and tightening feeling. (3) To cause an ulcerating and sloughing surface to take on a healthy and healing aspect, and to diminish in size through the growth of epithelium from the edges. (4) To dissipate and remove cancerous and sarcomatous tumors (Dr. Ritchie's case).

Cases. Eighteen in number, of which nine affected the mamma; two, the tongue; one, the scalp; one, the penis and scrotum; one, the cervix

uteri; one, the rectum; one, the larynx; one, the glands of the groin; and one, probably a sarcoma, the side of the neck.

Nearly all these were, for various reasons, inoperable cases, and therefore all the more difficult to treat successfully, and yet all but three of them showed improvement, and some of them remarkable improvement. The breast cases are the most successful and the tongue the least. I should like to have the opportunity of treating a case in which the pylorus is affected.

Recurrence is usual, and in no case yet have I seen a definite cure; the treatment seems to be a race with the disease, but the recurrences yield as before, and a stage is arrived at in which one or two short exposures per week will suffice to keep the disease in abeyance and to remove any distressing symptoms.

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"NEC TENUI PENNÂ."

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MALPRACTICE suits are entirely too frequent, and we think that there can be but little doubt as to the prime cause of their frequency. It is certain that many, if not most of them, are caused by other physicians who intentionally or otherwise lead patients to believe that there is a chance to recover damages. This is done by suggesting that the case has been improperly treated, and often the suggestion of suing is made directly, without any qualification whatever. It seems needless to comment on the character of such a man; that he should be read out of the profession there is no doubt. Again, physicians are to blame sometimes themselves.

It should be remembered that whenever a doctor assumes the management of any case that it is his duty to do everything in his power for the good of the patient—nothing should be left undone, and if he has any doubt about being right, he should call a consultant. If a patient refuses to obey the instructions of the doctor he should be notified at once by the doctor that he (the doctor) will no longer be responsible for any bad results that may occur. In attending cases of labor, after the labor is finished the doctor should satisfy himself, either by digital examination or ocular inspection—the latter always being preferable—that there has been no rupture of the perineum. While it is not always possible to prevent a rupture of the perineum, if it does occur those interested, as the husband, should always be made acquainted

with the exact condition of affairs, and if it is possible to make the repair it should be done at once. Under ordinary circumstances this is the proper time. If, on the other hand, a large rupture of the perineum should go unnoticed and the facts, as they must, become known subsequently, the attending physician would very justly come in for a large share of severe criticism.

Lastly, many malpractice suits are the results of the advice of unscrupulous members of the legal profession, many of whom make their living by indirectly blackmailing members of the medical profession. It should be remembered that, as a rule, there should be no compromise with these sharks of the legal profession. Everything for defense and nothing for compromise.

THE ASSOCIATION OF SURGEONS OF THE SOUTHERN RAILWAY.

This Society met at the Chamberlain Hotel, at Old Point Comfort, on the 7th, 8th, and 9th of July, with an attendance of nearly two hundred members. Twenty-three papers were read, covering almost the entire field of railroad surgery. The papers were excellent and were discussed freely, showing that the members were there for business and that they were interested in their profession. Other railways might well follow the example of the Southern in having their medical staff meet annually and discuss matters medical and surgical.

Dr. Robert Lee Payne, of Norfolk, Virginia, was elected President, and the Society will meet in Louisville next year.

Special Notices.

Treatment of Eczema of the Scalp.—Parker pleads for more patience and perseverance in the treatment of this troublesome affection. So many physicians prescribe time or pronounce the condition hopeless that parents often discredit the physician who promises recovery within a reasonable time. The first measure in successful treatment is a thorough washing and shaving of the head. Castile soap and much water of a temperature not less than 100° F. should be used. The same water should not touch the head twice, and pledgets of absorbent cotton are to be used to remove the crusts. When cleansed the head should be dried with a clean soft towel. During treatment the pillow-case should be consigned to the wash-tub each morning and a clean one put into its place. These are not over-particular but imperative details if favorable results are desired. Jugglery in prescriptions can not avail, and rigid hygienic measures, extending to all the surroundings, must accompany medical treatment. The second step is, in the case of nursing infants, to treat the morbid constitutional condition generally found in the mother. The alterative iodia is nearly always applicable, and in severe cases should be administered to both mother and child. If the irritability attending the eruption requires special treatment, bromidia should be given. Some children will require an easily assimilated iron tonic. The bowels must be kept open with a mild aperient given in the early morning. Locally boroglyceride is the best ointment. Ecthol is also a remedy of much value, being a powerful corrector of depraved conditions in fluids and tissues. It is employed diluted, according to the severity of the case, and sprinkled upon a thin cap of surgeons' cotton. The cap should be renewed and the old one burned daily.—*Medical News.*

Melancholia, Insomnia, and General Lowering of Nerve Power.—In a very forceful and exceedingly interesting paper on this subject, published in the Cincinnati Lancet-Clinic, Dr. T. D. Fink, of Louisville, Ky., writes the following: "I am convinced that there is no other remedy so useful and attended with such satisfactory results in the treatment of melancholia with vasomotor disturbances, aneunic headache, emotional distress, and active delusions of apprehension and distrust as Antikamnia Tablets. These tablets also increase the appetite and arterial tension, promote digestion, and are particularly serviceable in relieving the persistent headache which accompanies nervous asthenia. In neurasthenia, in mild hysteroid affections, in the various neuralgias, particularly ovarian, and in the nervous tremor so often seen in confirmed drunkards, they are of peculiar service. Patients who suffer from irritable or weak heart, needing at times an analgesic, can take them without untoward after-effects, knowing that the heart is being fortified. In delirium tremens they relieve when there is great restlessness with insomnia and general lowering of the nerve power. The pain of locomotor ataxia yields to treatment with Antikamnia Tablets in a remarkable degree, their analgesic power being of a peculiar kind, in that they will relieve painful affections due to pathological conditions of the peripheral nerves, as neuritis, etc., also lumbago, sciatica, and myalgia. In chronic catarrh of the stomach, with its often accompanying headaches, in cardiac dropsy, and in ascites, they are of decided benefit."

THE

AMERICAN PRACTITIONER AND NEWS.

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

DIAGNOSIS AND MANAGEMENT OF APPENDICITIS.*

BY A. D. WILLMOTH, M. D.

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In discussing the subject of appendicitis it is very hard to stay clear of the etiology and pathology of the disease, for in the mind of the essayist our knowledge of every disease, so far as the management of it goes, depends on our knowledge of the many pathological changes that go on in the various stages of the disease. But knowing that you are all thoroughly acquainted with these two important points of the subject, I decided to make my paper of a practical nature, and mention only those things that seem of most importance to all of us, and in doing this my mind is first launched in the channel of diagnosis of this all-important disease.

I am well aware that every physician is able to diagnose a case of typical appendicitis where the fever and pulse run up and abdomen distends and pain is prominent, but every case is not like this, and by no means so easy. Some are so insidious in their nature that many are treated for something else, and even those of more rapid symptoms may so closely resemble other inflammatory conditions in the abdomen that the best diagnostician may go wrong. For instance, an appendiceal pain may be referred to the region of the gall-bladder,

*Read before the Meade County Medical Society at Brandenburg, Ky., on July 27, 1903.

and one case recently to my own knowledge was operated on for gall stones.

As a rule, in appendicitis we base our diagnosis on the following four points: Suddenness of the attack, occurrence of acute abdominal pain, tenderness at the site of the appendix, the occurrence of nausea and vomiting either along with the pain or following it. The location of the pain should be carefully noted, for in many cases the pain at first is around the umbilicus and in the epigastrium, which, when accompanied with nausea and vomiting, will throw us off, and many such cases were, until the present decade, called "bilious attacks"; but one thing is noticeable, that in appendicitis the pain is unbearable and the powers of the patient are soon transcended, and they beg for relief. If opium is not used to allay this symptom we will notice almost at once that the muscles on the right side soon limit respiration, and unless the appendix is extraperitoneally involved the patient soon shows that peculiar facial expression that all of us are so familiar with, and know when we see it that peritoneal involvement has taken place.

Along with these goes increased abdominal distension and pain; the distension may become so great as to assume a barrel-shape, and is due to two causes, either to effects of opium or to peritonitis, which, according to Richardson, of Boston, may be differentiated by auscultation, when in paralysis of peristalsis due to peritonitis no sound will be heard, while in the other no inhibition of intestinal action will be obtained. As the disease progresses, not only do we find tenderness at McBurney's point, but owing to adhesions taking place and inflammatory exudate poured out, a fullness at anterior-superior spinous process begins to show; and we also find another point of tenderness parallel to Poupart's ligament and just opposite and below the anterior-superior spinous process. This point is due to adhesions which form between the dextral portion of caput colli and pelvic wall.

During the time that all these symptoms are coming out we notice that the patient has some increase in pulse-rate and rise of temperature, which may bear no relation to the severity of the attack or its progresssive character. These may be but slightly marked in a case in which perforation and consequent general peritonitis is imminent on the one hand, while on the other a simple endo-appendicitis (catarrhal) may be accompanied by marked fever. The tumor can rarely be made out until between the second and third days; frequently it is not discoverable until later in the attack.

A fixed and tender tumor in this region is more than likely to be of inflammatory origin, while a movable and comparatively insensitive mass will, in all probability, prove to be a neoplasm. The attendant should be on his guard against the following sources of fallacy: (*a*) In an exceptionally long appendix, inflamed at its distal extremity, the tumor may be found elsewhere than in the ileo-cecal region, thus varying with the direction taken by the organ. (*b*) Cases of left-sided appendicitis, deep pelvic abscesses of appendicular origin, and appendicular abscesses in the right hypochondrium occur as the result of deviations from the normal anatomical disposition of the ileo-cecal junction. (*c*) Again, the appendix may become enveloped in a mass of omentum, which in its turn is not attached to the abdominal wall.

After a few hours and at about the same time that we noticed the other symptoms, the patient may have more or less rigors, or at least chilly sensations, but these are of slight importance, both in the first and later stages, for it is a well-recognized clinical fact that intraperitoneal suppuration does not give rise to chills and rigors as frequently as when the process is outside of this cavity.

Again, those of us who are so situated that we can have a microscope at our disposal have one of the best means for diagnosis, that of a count of the leucocytes, for we well know that in inflammatory conditions that an increase in the leucocytes takes place, and that this increase is usually the result of (1) the severity or virulence of the infection; (2) vitality or reactive powers of the patient. The knowledge of the following table, as laid down by Cabot, will aid us many times. The table or rules are as follows:

Infection mild; vital reaction good; small leucocytosis.

Infection less mild; vital reaction less good; moderate leucocytosis.

Infection severe; vital reaction good; very marked leucocytosis.

Infection severe; vital reaction poor; no leucocytosis.

To summarize, in inflammatory infections usually accompanied by a leucocytosis, the absence of it is either of serious omen, showing virulent infection and slight reactive power, or it is a sign of mild infection.

With the above symptoms in our minds clearly, as a rule, diagnosis is easy, but I could not do the subject or myself justice if I failed to speak of the differential diagnosis. The diseases most commonly mistaken for appendicitis are (*a*) lesions of the gall-bladder and renal origin; (*b*) lesions originating in the intestines and not of necessity

involving the appendix; (*c*) tubo-ovarian disease. In the three diseases we notice the following differences:

Appendicitis.	Hepatic Colic.	Nephritic Colic.
Pain peri-umbilical and referred to the epigastrium as well; does not radiate above these points. Fixed point of pain in right iliac fossa; sensitiveness greatest in right iliac fossa over McBurney's point.	Pain referred to the epigastrium and radiates toward the shoulder and the point of the scapula. Starts from the region of the gall-bladder as a fixed point. Sensitiveness extreme beneath lower border of ribs; tenderness over gall-bladder.	Pain radiates toward the groin and testicle, and sometimes to rectum, giving rise to desire to go to stool, and tenesmus. Sensitiveness greatest over pelvis of kidney. If tenderness exists in front, it is greatest over Poupart's ligament.
Vomiting occurs, but is not persistent as a rule.	Vomiting frequent and intractable.	Vomiting not a frequent or prominent symptom.
Bladder and testicle symptoms very rarely present.	Bladder and testicle symptoms absent.	Bladder irritable, dysuria.

In tubo-ovarian disease we notice that the chief points of diagnosis are as follows: First, that the pain in tubo-ovarian disease is dull and localized, while in appendicitis it is acute and radiating except in the subacute and chronic form; next, that the proportion of males to females is one to four; also that fever in tubal trouble is rare, while in the other it is common. Muscle rigidity is absent in one and present in the other; tumor always present in both; is much lower in the pelvis in tubal disease, etc.

With these remarks on the diagnosis, we now pass to the more interesting and at the same time more important part of the subject, viz., treatment. This is by far the most important part of the subject, and should be as thoroughly understood by the physician as by the surgeon, for the physician is the one usually summoned to see cases of appendicitis first, and on him devolves the task of making the diagnosis and suggesting the need of a surgeon to aid him in the case.

To say that all cases are medicinal would be too ridiculous for any fair-minded and up-to-date physician to say; to say that all are operative cases would perhaps swing the pendulum too far in that direction, for all of us have seen cases that have come under the care of the surgeon in which the conditions present are such that the risk in operating can scarcely be exceeded by those taken in treating the case expectantly. The patient is too weak to stand the combined effect of anesthesia and shock from operation, and would die if operated on, before any beneficial effect could be realized, hence the treatment is divided into non-operative and operative. Under the first head comes the

above cases, those that refuse operations, and those that are mild in character and can be tided over.. If we have to limit ourselves to the first, the following is a safe line to pursue:

The first thing is the care of the bowels; stop everything from going in and get everything in there out. If in the first twenty-four hours, use calomel and rhubarb, one grain of first and two or three of second, every thirty minutes until five or more doses are given. This may be preceded by an enema, along with the use of cold or hot to the abdomen, and preferably cold. Keep the patient absolutely quiet in bed, and in regard to the use of opium, if the question of operation has been disposed of negatively and finally, and the medical attendant is fully aware of the fallacies in the prognosis that it may give rise to, then he may employ it to relieve pain and restlessness. If an operation is pending on the progress of the case, by all means withhold it if possible, for you all know it may so mask the symptoms that the fatal ones may be be present and not be shown by the patient.

The skin and kidneys should be looked after to aid their eliminative actions, and at the same time the patient's strength must be maintained by feeding milk, farinaceous gruels and meat broths, white of eggs in water, etc. If pulse shows signs of weakness, strychnia in connection with quinine, spartein, and nitro-glycerine. The last named increases action of kidneys by raising blood-pressure and lessening capillary resistance.

The operative treatment is the one of most importance, for it is my opinion that with very few exceptions indeed, all cases should be operated on at some time, and the word "time" is one that is hard for us to decide on. In my opinion, if seen in the first twenty-four hours, all should be opened and the appendix removed. Every case not virtually well at the end of twenty-four hours will be a dangerous one for the patient to trifle with, for it promises to be of a severe nature; and to operate too early may be to operate unnecessarily, but this is far preferable to operating late and unsuccesfully. The surgeon, however, should by no means limit himself to that period.

In cases in which unusually severe symptoms, such as high temperatures and a succession of rigors, or conjoined with exquisite tenderness in the right iliac fossa and an anxious facial expression, the surgeon should not hesitate to give the patient the benefit of an early and radical operation. Where the patient is not seen by the surgeon until the third, fourth, or fifth day of the attack, a question as to whether or not the operative procedure may be contraindicated by

them, impossibility of removing the appendix without breaking down the adhesive barriers which have been thrown out, is one which is frequently encountered by those engaged in this class of work. As very tersely stated by Richardson, we may be confronted by cases which are in a condition too late for an early operation and too early for a safe late operation. In deciding this question much will depend upon the experience of the operator and the facilities which he may possess in the shape of skilled assistance and other requisites to meet all emergencies as they arise. If the surgeon is called in after diffuse septic peritonitis has developed, operative measures should still be instituted. Infection of effused serum following peritonitis, not necessarily suppurative, offers sufficiently encouraging results to impel the surgeon to give the patient the benefit of late interference. The case is not necessarily hopeless even after general suppurative peritonitis has commenced. The chances of recovery, however, progressively diminish with the lapse of time following the beginning of the peritonitis.

In the main, cases of appendicitis requiring operation will come under one of the following heads: 1. Cases in which the question of operation simply resolves itself into that of opening an abscess formed in a mass of adhesions, conditions which commonly obtain at the end of the first week of an attack, in which inflammatory adhesions form, and which go on to suppuration. 2. Cases which hold out a reasonable hope that the appendix can be removed with safety, although infection beyond the organ itself is present. The conditions permitting of this obtain from about the second or fourth days. 3. (*a*) Cases in which the operation is undertaken sufficiently early in an attack (before or at the end of the first twenty-four hours of the seizure) to give reasonable assurance that the infection is confined to the appendix. (*b*) Cases operated on after the subsidence of an attack and during the period of quiescence. In addition to these, cases of doubtful diagnosis come under the surgeon's observation, in which the operator must be prepared to carry out more or less exploratory procedure in investigating, in addition to the appendicular region, the region of the gall-bladder in males, and both this and the contents of the pelvic cavity in the female.

The operation chosen should be carried out with the most rigid attention to aseptic surroundings and conditions, even though infection of the peritoneal cavity is known to have already taken place, or though suppuration be present. There can be no excuse for any danger in the aseptic technique, even though under such circumstances.

LOUISVILLE.

REMARKS ON THE CRIMINAL INSANE AND THEIR CARE.*

BY JOSEPH W. IRWIN, M. D.

The present is a fitting occasion to invite your attention to a matter that is of no little importance to Kentuckians if we are to take our place in the procession of advancing civilization. Therefore, I shall make a few remarks on the criminal insane and their care. Perhaps at no time in the history of the State has the eye of the civilized world been so firmly fixed upon us as at the present. The disorder, intimidation, and bloodshed that has so recently prevailed in some of the mountain counties and elsewhere has left a stain on the law-abiding citizens which should be erased.

The methods of venomous factions in settling their disputes without the intervention of courts of justice show a want of civilization that when carefully considered appears to have its origin in psychical degeneration. The criminal insane are those who more or less frequently do injury to themselves or to society. Under this head are included suicides, homicides, burglars, kleptomaniacs, highwaymen, chronic drunkards and liars, which latter includes those addicted to the use of opium and cocaine.

The suicide, in obedience to impulse, destroys his own life rather than to face the responsibility of some previous crime, a desire to escape physical pain, or while laboring under a delusion. The homicide destroys life for gain, revenge, fear of exposure, an impulse, or a thirst for human blood. The burglar steals and even murders so as to obtain wealth without labor. The highwayman has the same object in view as the burglar. The kleptomaniac, in taking and concealing articles that do not belong to him, and for which he has no use, finds abundant pleasure. The chronic drunkard squanders his fortune in obedience to his animal cravings, forgetful of the helpless ones he is depriving of the necessities of life.

The most dangerous to society of all criminals are chronic liars, for they spare neither the memory of the dead nor the feelings of the living, and drug-users delight in telling falsehoods even in cases of no interest to any one. We may guard against the other degenerates, but against the work of the liar, who deprives the innocent maiden of her

*Address delivered by Joseph W. Irwin, M. D., of Louisville, Ky., at the dedication of the Amusement and Industrial Hall at the Western Kentucky Lunatic Asylum, on the 8th day of August, 1903.

good name, the honest workman of the means of earning his bread by the sweat of his own brow, who breaks the friendship between friends, who disrupts families and homes and who bears false witness to destroy the innocent and save the guilty—we have no adequate remedy. The wrongs done by the tongue of slander can never be blotted out. Their memories will live long after the slandered have passed over the dark river.

The foregoing criminals are the subjects of psychical degeneration, and as their practice goes on they become progressive degenerates. A startling illustration may be found in the case of a noted citizen, who boasted of his accomplishments as a liar and finally became a total degenerate and died an inmate of an insane asylum. The suggestion of a great potentate that man upon certain occasions should "lie like a gentleman" has planted in the minds of the wavering, dangerous seed. A gentleman should not lie. His word should be as good as his bond. Man can not by the use of falsehood stifle the truth or cheat death of his dues. It is a bad motto to live by and a worse one to die by.

It is not in the line of true reason to believe that criminal acts are ever the result of normal cerebration. Psychical degeneracy has its origin in heredity as a rule, but it may be acquired by environment, and where heredity exists it is easier to cultivate. Rear any child in an atmosphere of crime and its mind will take up the prevailing impression, and as it grows older the want of use of its moral faculties stunts the development of those parts of the brain until it does not know right from wrong. Thus in the case of heredity it imparts to its offspring the impression that is inherent in its cells, and in the acquired the impression is somatic in its blood and brain.

Russell, in his work, "A Plea for Posterity," refers to a noted family, the mother of which was a chronic drunkard (Frau Jukes), who died in the year 1800 at the age of sixty. Seven hundred and nine of her eight hundred and thirty-four descendants whose history has been given show the following results: One hundred and six were of illegitimate birth, one hundred and forty-two became beggars, sixty-four were charges of the State, one hundred and thirty-one of the females became prostitutes, sixty-nine were convicted of various crimes, and the seven hundred and nine descendants of this one woman are said to have cost the State one million two hundred and fifty thousand dollars within a period of seventy-five years. Other convincing statistics touching

psychical degeneracy or criminal insanity could be referred to, but this will suffice.

We have enough disorder and bloodshed prevailing within our own State to confirm in a general way the foregoing facts, and therefore it behooves us to appeal to the law-making power to provide suitable quarters for the detention (and cure if possible) of such criminals. Let us look upon the merciful side of the case and treat them with commiseration rather than a feeling of revenge.

When persons are found guilty of the foregoing crimes, instead of sentencing them to a term in the penitentiary, they should be sent to an insane asylum for an indefinite time so as to allow the alienist in charge an opportunity to learn their exact mental condition, and if hopelessly incurable they should be detained for life. When in the opinion of a competent alienist they are capable of performing the duties of good citizenship they should be released and given a chance, after the first offense, to behave as good citizens. On the other hand, should their second detention be required, they should be confined during the remainder of their lives, and when once detained, if at any time thereafter they should be released or make their escape from the asylum, they should not be allowed (if unmarried) to marry or to vote in the State of Kentucky, and if they married outside of the State, they should not be allowed to return and reside in it. Thus heredity would not confer its miseries on its offspring, and human life would be safe in the great commonwealth of Kentucky. Confinement in an insane asylum as a psychical degenerate would not prove to the average criminal a congenial place, and the stigma attached to the idea would put a stop to many crimes.

There is another class of individuals who commit murder by reason of impulse or revenge, and having no excuse for the crime, the plea of insanity is entered as a means of escape. In such cases, where the plea of insanity is entered in criminal courts, they should at once be committed to an asylum as degenerates and there kept under the surveillance of an alienist sufficiently long for him to ascertain their sanity or insanity. They should then be tried according to the forms of law, and the opinion of the alienist should have great weight in determining the mental status of the accused.

It is well known that many such criminals have escaped their just punishment by reason of so-called medical expert testimony; a few hypothetical questions were propounded by the learned counsel and

answered by the expert in the affirmative, and the jury returned the verdict that the murderer was not responsible for his crime. Perhaps, to appease public clamor, an "inquirendo de lunatico" found the criminal insane, and he was sent to an insane asylum until the storm of public excitement had passed, only to make his escape to another State, to be recognized thenceforth as a sane man. Here, then, one of the dangers of so-called expert testimony is apparent.

When we come to know that in the civilized world about ninety-seven per cent of all persons are not capable of observing everything alike, sane on ninety-nine of the one hundred points, insane on one, hypothetical questions propounded to such individuals would show them as having a mental twist, and hence it would be absurd to confine such persons in asylums, as they are recognized as peaceful citizens, obeying the laws and performing the duties of citizenship as husbands and wives and filling responsible and honorable positions in the various walks of life.

Suitable and separate quarters should be provided by the State for the care of the criminal insane. They should, as far as possible, be made self-sustaining, and thus save expense to the State. The alienist should be the superintendent, and he should be a competent medical person of the highest order, both as to character and as a physician, conversant with every form of psychical degeneracy. His term of office should be for life and good conduct, and his removal should be effected for incompetency or bad conduct only. He should be empowered to appoint and discharge all subordinate officers and employes of the institution, and be held responsible for its proper management. The office should be non-political, and his appointment should be made by the Governor when duly advised. His compensation should be proportionate to his ability. The need for such a person is at once apparent, as he is to be the sole judge of the wants and acts of the unfortunates under his care. Insane persons, no matter of what degree, when they become wards of the State, have no right or say as to their management. Every walk of life contributes to psychical degeneracy.

Such persons, we should bear in mind, have not the privileges of the common pauper—the inmates of our almshouses and other eleemosynary institutions. The pauper may leave the institution when he is displeased with the treatment he has received, or is about to receive, but it is not so with the insane. The alienist is supreme—his word is the law.

Therefore, it behooves the State to appoint a man of great learning, of broad mind, and of firm character. All criminal insane should be treated with the utmost kindness and their wants should be, as far as possible, provided for.

LOUISVILLE.

CEREBRAL SCLEROSIS.*

BY ORVILLE A. KENNEDY, B. S., M. D.

Cruveilhier was the first to call attention to the presence of pathological patches of sclerosed tissue disseminated here and there through the brain and spinal cord, though he does not appear to have regarded them as being diagnostic of any special symptom-group observed during life. The credit of having first mapped out the clinical signs by which could be determined the presence of cerebral sclerosis belongs to Charcot.

This disease is characterized by an increase in the connective tissue of the central nervous system. In the brain and cord there are two kinds of connective tissue, one, the neuroglia, derived from the ectoderm, and the other being derived from the mesoderm. Both are involved in the sclerotic process, but to varying degrees in the different forms of the disease. The anatomical lesions caused by the sclerosis present several different forms, which constitute the basis of the classification into four varieties: Miliary, diffuse, hypertrophic, and insular sclerosis. In insular sclerosis small nodular projections are found on the surface of the convolutions. Gowers mentions a case in which there were grayish-red spots at the junction of the white and gray matters, and in which the neuroglia was increased. So far as is known, no symptoms are produced by this variety.

In diffuse sclerosis the increase in connective tissue may involve a whole hemisphere or a single lobe. The symptoms excited by it depend upon the region affected, although there may be a considerable extent of sclerosis without symptoms. In a majority of cases, however, there is hemiplegia or diplegia, with imbecility or idiocy.

In hypertrophic sclerosis there are on the convolutions areas projecting beyond the surface, of an opaque white color and exceedingly

*Read before the Louisville Society of Medicine.

firm. This variety, as well as the two preceding, are of no practical importance to the general practitioner, because they are rarely met with except in asylum work.

It is the last, the insular sclerosis, to which I wish to call your especial attention. This variety is also described as multiple sclerosis. It is a chronic affection in which the nerve elements in localized areas of the brain and cord are replaced by connective tissue. The areas may occur in any part of the brain or cord alone or, as more commonly happens, in both, although in nearly all cases the lesions are more prominent in the brain. On section of the brain, these areas appear as grayish-red patches scattered through the white matter. They are often found abundant in the neighborhood of the ventricles, and in the pons, cerebellum, basal ganglia, and medulla. Examined histologically, these patches show a great increase in connective tissue.

Insular sclerosis is a disease found most commonly in middle aged persons, although more than fifty cases in children have been reported by Pritchard. It occurs in either sex with equal frequency. We know practically nothing of the predisposing or exciting causes. A number of authors assign great importance to scarlet fever and other infectious diseases as predisposing causes in children. Pritchard lays great stress on heredity as the chief predisposing cause in children, and cites many examples in support of his argument. He also considers traumatic shock or injury as a most important exciting cause. Among adults cold, and especially prolonged exposure to damp cold, is advanced by many as an etiological factor. Syphilis also seems to play a part in the etiology of some cases.

The symptoms of this disease vary according to the location of the sclerotic areas in the brain and cord, and this has permitted many facts to be observed which are of great interest and importance from a clinico-pathological standpoint. Pritchard writes interestingly on this subject, and I will quote what he says: "The symptoms manifested during life will often point with remarkable consistency to the exact or approximate location of the sclerotic patches. Thus, in Drummond's case, the presence of persistent glycosuria with polyuria suggested the very probable involvement of the medulla, an hypothesis fully confirmed by the finding of a well-defined patch of sclerosis in the floor of the fourth ventricle. The nuclei of origin or the root fasciculi of the hypoglossal, the facial and other nerves, have been invariably found to be foci of disease in cases in which paralysis of the parts supplied by such nerves

had been observed. A spastic or pseudo-spastic gait indicates a focus of disease in the cord, usually in the lateral columns, which seem, by the way, peculiarly liable to invasion in multiple sclerosis. Decided trophic changes, such as wasting or atrophy, point to involvement of the anterior horns, while marked ataxia with parasthesia or other disturbances of sensation suggests very emphatically an involvement of the postero-lateral columns. The deep reflexes are of value here, in that an exaggerated patellar tendon-reflex is almost conclusive evidence of disease in the lateral or pyramidal tracts, an abolished reflex pointing with equal certainty to a predominating sclerosis in the posterior columns and root zones. The location of the diseased patch or patches in the cerebrum may be almost as readily determined, the symptoms being more or less distinctly diagnostic according to the region involved."

From the nature of the lesions in this disease, with their variations, number, and location, it is apparent that a group of symptoms that represents all cases can not exist. But, as Charcot first pointed out, a certain group of symptoms often exists which, when present, enable us to make a diagnosis with great certainty. These symptoms are: Tremor, scanning speech, nystagmus, spastic symptoms and mental impairment. The tremor comes on only with intended movements—"intention tremor"—and usually does not show a perfectly regular, rhythmical character, but is unequal and jerking, although the intended direction of the motion is, on the whole, always retained. The tremor is most marked in the upper extremities, and is shown when a patient tries to bring a glass of water to his mouth; but the tremor also occurs in the head, in the trunk, and in the lower extremities as the case progresses. In one case I have noted the tremor was most marked in the tongue, shown when the patient would stick out his tongue. When the patient is perfectly quiet the tremor ceases entirely. The speech is slow and "scanning"; each word is pronounced with deliberation, although later in the disease not clearly, and still later the speech is almost, if not quite, unintelligible.

Nystagmus, or oscillation of the eyeballs, is seen when attempts are made at fixation of the eyeballs, or on intended ocular movements. The oscillations are usually lateral. The spastic symptoms consist of a very considerable increase in the tendon reflexes, persistent ankle clonus, and a tonic rigidity of the legs, which gives to the patient a peculiar dragging gait. The gait often closely resembles that of locomotor ataxia.

The disturbances of sensibility are usually remarkably subordinate in insular sclerosis. Only rarely is blunting of sensation found, and quite exceptionally marked anesthesia. Mental impairment or debility is in many cases an early symptom, and as the disease progresses gradually increases to a state of imbecility.

In the last stages of this disease the patient becomes unable to perform any kind of mental or physical effort. Evidence of mental decay is shown by his inability to retain urine or feces, a loss of memory, of mental control, a disregard of surroundings, and maybe even dementia. Bed-sores and general debility add to the distressing condition of the patient, and if some complicating disease does not intervene and cause death the disease may terminate in general convulsions, exhaustion, or coma. The duration of insular sclerosis is from one to ten years; usually the disease extends over a period of five years.

There are no known measures that have the slightest influence in retarding the progress of this disease. The prognosis is always bad. Among the remedies proposed, nitrate of silver has the greatest number of supporters. Hammond claims that great benefit may be derived from the administration of a grain of barium chloride and one drachm of tincture of hyoscyamus given three times a day. Hammond and Ranney both claim that this combination lessens the tremor and has a favorable influence over the disorders of motility.

LOUISVILLE.

AN ADDRESS.*

BY W. H. M'CRACKEN, A. M., M. D.

It is at once my duty and pleasure to greet you, and in the name of the class to bid you good-bye.

We have served our allotted time as students in the University of Louisville, and now we have received our diplomas and are doctors. Think of it, ponder it, and as you ponder fail not to breathe a passing prayer for the laity.

We are not a large class, but what we lack in size we make up in good nature. Our motto, *non quantum sed qualum*, you will recognize as especially appropriate, though it has been suggested that *multum in parvo* or *e pluribus unum* would do quite as well. An old-time preacher, called to deliver an obituary address, began: "Brethren and sisters, we are met together to bury this onery cuss. Let us remember his virtues, if he had any, and forget his faults if we can." We pray that you will be likewise lenient to the class of 1903.

We realize that to most of you this commencement is relatively trivial, the episode of a day. To the five of us who constitute the class it is a far different matter. We have worked hard for these "sheepskins." It has taken us four long years to earn them, and the event that closes four years of the best part of a man's life is one to be marked with a white stone. As a class, we are gathered from many lands. Texas, Kentucky, Minnesota, New York, and Tennessee have contributed their part to our medical acquirements, and now we are graduated from the old school, the University of Louisville, and let me tell you, we are proud of the fact. I have sometimes wondered if the people of Louisville really know just what this institution has done, not alone for Louisville, but for medical science the world over.

I am not in a position to call the roll of illustrious men whose student days have been spent within these walls. I can not speak to you of their achievements, which have been told around the world, but this much I may say: In excellence of repute the University of Louisville stands second to no school in this land, and to be one of its accredited graduates is to be in a position to earn and merit the respect of the medical profession at large. I must plainly state that the Southern colleges are not

*To the Graduates of the Spring Session of the Medical Department of the University of Louisville, July, 1903.

in the best of repute in the North, whatever the reason may be; and when early last winter I was obliged, on account of broken health, to leave Chicago and its raw winds for a milder climate, there were just two Southern schools which my advisers would recommend as first class; one of these was the old school, the University of Louisville. We are proud of our alma mater, proud of her past, proud of her as the mother of presidents of the American Association; proud of her present, with its thorough work and its magnificent clinics, equaled by none in the country. We are proud of her future too, and we, her sons, take this occasion to pledge ourselves that so far as in our power lies we will aid her in any needs that may arise.

The medical world of to-day is more or less torn by dissension in regard to schools, and more is required from each school from year to year. The University of Louisville has been a leader since the year of her birth in 1837, and as we leave her it is with perfect faith that she will still keep the van of medical schools, even though her endowment be expressed in terms of brain and good clean grit rather than in those round pieces of metal that men call dollars, and for which men—yes, and schools—are willing to barter their hope of immortality. Dollars are good, and we need them, but in the long run pluck wins out every time.

I have sometimes thought, and never more than since my enrollment here, that a great endowment, in a way, places a barrier between the school as represented by the Faculty and the student body—a barrier over which neither side can well climb, even if they so desired, and one which effectually destroys the helpful sympathy so prevalent here, and so often to be found in schools dependent upon coöperation between teacher and student. I do not wish the old school a heritage of poverty, and if some of her wealthier children would remember her substantially I would be among the first to wave my hat and shout hurrah! Still I think I love her a little—just a very little—better as she is.

Gentlemen of the Board of Directors and of the Faculty, we thank you, not for these diplomas, for these we have fairly and honestly earned; we thank you rather for the time and pains and effort you have bestowed upon us in making it possible for us to deserve the honor we receive to-day. We do not belittle our privilege of admission to your guild, and we hold ourselves more fortunate than other men, in that it was ours. Yes, we thank you for the aid you have given us, and I think perhaps most of all we should thank you for your splendid patience and your

serene confidence in the fact that virtue adequately rewards itself. Surely no teacher of medical students ever reaped any other reward in this world. We thank you for the spirit of push and energy shown here, and we hope that it has in a measure proven contagious, and that we have appropriated a share of it to call our own. We recognize it as the true spirit of the Western school. Did you ever hear the story of the university clocks? In the East they have great tall old-fashioned clocks that tick gravely, and say: "Go slow," "Keep cool," and that run down at the approach of warm weather, while here in the West the universities have only little round metal clocks, but they run all summer, and say, "Git there, git there, git there!" Long may the sentiment continue!

And now, Fellows, the "jig is up!" We have spent a pleasant year together, with much work, much laughter, and little to regret. We have been well treated here, and now that it is time to go and we are no longer part and parcel of the school, we feel a sensation that somehow even these beloved and much-desired diplomas do not quite relieve. There is just the suspicion of a lump in your throat and in mine as we realize that we are out of it, and that we can never really, truly, belong again. The old roost at the rear of the dispensary is deserted, and though a new senior class will sun itself there next year, and chum with "Milt and Bob," and growl about things on general principles, still we will not be here, and this hour turns the leaf for good and all on one of the best, brightest, and sunniest chapters in the book of our lives. Never again may we sit in these seats and criticise our lecturers and surreptitiously imitate their mannerisms. The clinic may be ever so large, but we will not be there. The crap game may flourish like the green bay tree, but we will not be in it. Where will we be? Goodness knows. We are the tail of the medical dog, and the best we may hope is that by continual wagging we may ultimately be able, in slight measure, to influence the animal as a whole. Let this be our aim: "To cut ice," to be somebody; in short, to hustle, to the end that these our sponsors need never regret that they have named us Doctor.

I have taken the liberty of writing a few verses, which, with the kindly permission of the poet laureate of the Faculty, I will read, and so bid all our friends good-bye:

THE UNIVERSITY.

Thou dear old school upon the knoll,
Where scyamores are shading,
Long may the laurel o'er thy name
Hang lustrous and unfading.

Those plain gray walls and pillars tall,
And broad stone steps ascending,
Seem like a strong man, gray withal,
Yet rugged and unbending.

Come with me, and I'll show you round,
The place is worth beholding;
The lofty hall, the winding stair,
With antiquated molding.

Here is the amphitheater,
With seats in goodly number,
That in the corner is the one
Where Williams used to slumber.

Upon these seats so hard we sat,
With many a weird contortion,
While Doherty filled up his hour
With lecture on abortion.

And Doctor Anderson would bring
The patients and compose them,
With gentle and persuasive words,
But never would expose them.

Here Doctor Roberts taught full well,
And told each tale that pleases,
And Doctor Cottell lectured on
Jim Dumps and nerve diseases.

And here Blitz brought the patients in
With little ceremony,
To be percussed and diagnosed
By Doctor Ouchterlony.

And Doctor Gilbert came here too,
With vaccine points in satchel,
And told us, among other things,
How Jacob served for Rachel.

Across the hall the students toil
Compatibles to fashion,
And strive like mad in Goodman's art
To pass examination.

While to the rear with microscopes
They seek the coy bacillus,
The sportive micrococcus too,
And other bugs that kill us.

Now come upstairs; upon the right,
We enter the museum;
'Tis full of horrors, great and grim,
If you should care to see 'em.

These are the quarters of the Dean—
We rate no man above him;
Some call him Gray's Anatomy,
But all the students love him.

Now down these steps and toward the rear,
To right we pass Mahaffy,
Examining the patients' eyes
The while he gives them taffy.

Across the hall see Turner there,
Prescribing with decision,
While Powell, in Number Five,
Performs his famous circumcision.

That isn't all by half, 'tis true,
But those we've failed to mention,
We leave for lack of space and time,
And not through ill-intention.

To many men in years agone,
Who've worn these stairs in hollows
We've joined our tread, but deepening
The tracks for each who follows

And now to the old school farewell,
May trouble ne'er oppress her;
One parting toast drink full and deep,
The dear old school, God bless her!

GUTHRIE, OKLA.

THE PAROXYSMS OF WHOOPING-COUGH TREATED BY PULLING THE LOWER JAW DOWNWARDS AND FORWARDS (NAEGELI).*

BY JACOB SOBEL, M. D.

Attending Physician to the Department of Children's Diseases, Beth Israel Hospital Dispensary, New York City.

In the third edition of his "Therapeutics of Infancy and Childhood" Jacobi[1] says: "The mortality from whooping-cough in New York City is as great as that from typhoid fever. Twenty-five per cent of all the cases under a year terminate fatally, 5 per cent of all those between the first and fifth years, and 1 per cent of all those occurring after the fifth. Its direct mortality, however, is not the only danger, for not infrequently chronic laryngitis, pneumonia, emphysema, dilatation of the bronchi, and the results of hemorrhages which occur during the attacks (convulsions, paralysis, either general or local, blindness) impair the health of the patient for many years or a lifetime. Thus the tendency to allow whooping-cough to run its full course on the plea that it is a self-limited disease or that every child must have whooping-cough is not justified." Such statements carry with them a forcible argument for exerting renewed efforts to mitigate or cure this obstinate and dreaded affection, and to guide our cases to a favorable issue.

In the treatment of whooping-cough two facts have been definitely established; first, that all measures to be efficacious must be directed toward diminishing the number and severity of the paroxysms, and second, that the success of medicinal treatment thus far has been in inverse proportion to the remedies recommended for the cure of the disease. The drug treatment of pertussis, despite the various preparations recently introduced, has been so unsuccessful that any new measure having for its object the alleviation of the patient's sufferings must certainly be considered as worthy of attention. So many and varied have been the drugs recommended for this disease that it would be an easier task by far to mention those that have not been tried. To the credit of the profession be it said, however, that the vast accumulation of literature on the subject is but another expression of its tireless search for remedies to alleviate or cure suffering.

*Read before the Section on Pediatrics, New York Academy of Medicine, April 9, 1903. Reported in Archives of Pediatrics.

It is not my purpose to review or pass upon the merits of all the drugs and procedures that have been recommended for this affection—antispasmodics, narcotics, nervines, anesthetics, astringents, inhalations, local applications, intubation, tracheotomy, vaccination, formalin, diphtheritic serum, counter-irritation over the pneumogastric, compressed air, carbonic acid gas per rectum, suggestive therapy, ozone, pertussis serum (Leuriaux[2])—nor to discuss the various theories of its causation—microbic, neurotic, specific catarrh of the respiratory apparatus, general infectious disease, irritation of the vagus by enlarged bronchial and tracheal glands (Guéneau De Mussy)—but rather to present for consideration, and I hope for trial, a method which I have applied in a series of cases, and one which I believe should be more universally known and practiced.

Some two years ago, in reading one of the clinical lectures[3] delivered at the New York Post-Graduate Medical School by Dr. Augustus Caillé, I met with the statement that manipulation of the lower jaw, as practiced during the administration of an anesthetic, would overcome the asphyxia of a whooping-cough paroxysm; or, to use his own words, "the attack of spasmodic cough which you notice is now coming on can be checked by pressing forward the lower jaw as you would in a narcotized patient who was not breathing properly. In some children whooping-cough attacks are so severe that they will end in convulsions, and it is well to know in what manner such an attack can be easily stopped." Though a mere statement of fact, without any attempt at an explanation of its effect, I considered the method deserving of a trial in view of the absence of any known specific for the disease, and because of the usual lack of success in treating it. At that time the clinical material at my disposal was unusually large, and enabled me to give the method a thorough trial; that is, as thorough as is possible with dispensary patients. I desire to state at this point that when I began my observations I had no knowledge of the article by Naegeli, to which I will refer later.

Accordingly, all cases of whooping-cough presenting themselves at the dispensary from June, 1901, to the present date were subjected to this treatment at the time of their visit, and the following results were obtained: In all ninety-six cases were recorded, ranging in age from three months to eight years. No selection of cases was made, the children being taken as they came; all grades of severity and all stages were observed, those with and those without a whoop. In the latter class (five in all) the diagnosis was based upon the prevalence of the disease

in the immediate vicinity, the history of exposure, the characteristic expulsive expiratory cough, the vomiting, congestion of the face, edema of the lower lids, and the usual absence of bronchitis. Of these I can report but nine failures (about 9⅓ per cent), that is, nine in which the method had absolutely no effect on the paroxysm at the time of the child's visit to the dispensary. Two of the failures occurred in the cases without a whoop. In the remainder, there never was a time when at one visit or the other I could not control the paroxysm and the oncoming whoop by pulling the lower jaw downwards and forwards. It may be that even in the failures, success would have been attained at some time or other could the procedure have been carried out regularly at home. In infants and young children the method seemed less efficacious than in older ones; they were more easily frightened by the maneuver, and as they could not be assured that the method was painless, their crying rather increased the severity of the paroxysm or brought about another. That crying, emotion, changes in temperature, swallowing, and irritation of the throat precipitate an attack is well known. In some young children, however, it acted remarkably well. It would be highly desirable if the effect at the different ages was reverse, inasmuch as the younger the child the greater is the danger of profound asphyxia and convulsions. In some instances, when the lower jaw was pulled forwards at the beginning of the attack, the paroxysm ceased as if by magic, and no whoop occurred. It may be questioned how it is known that in this set of cases a whoop would have occurred. As a control experiment, after arresting the expiratory spasm another paroxysm would be brought about by suprasternal pressure or an examination of the throat, the patient would be permitted to whoop once or twice, and then at the end of the second or third expiratory spasm, that is, just before the expected whoop, the lower jaw would be pulled downwards and forwards and no whoop would occur. In the series two cases of epistaxis were noted, in which during the paroxysm blood would literally pour from the nose; in these the method acted well and the bleeding was controlled. One boy of eight years had a severe subconjunctival hemorrhage which increased daily. In this instance pulling the lower jaw downwards and forwards stopped the paroxysms, and with them the danger of further hemorrhage. Many mothers became frightened at the sight of my pulling the jaw, but when they noticed the good effect their faces assumed an expression of satisfaction and relief. Older children were also alarmed at first, but later submitted willingly; in fact, some of them hastened to me for relief at the onset of

the attack. In most of the cases, and more particularly when the paroxysms were severe and frequent, the method was demonstrated to the mother or attendant, with instructions to adopt it in general, and always for the night attacks. Many returned to state that it proved successful.

O. Naegeli,[4] to whom is due the credit of first advocating this method of treatment for the paroxysms of pertussis, after stating in his article of July, 1889, that to cure without medicine is the ideal therapy and that physicians have become skeptical as to a new specific for the disease, expresses the hope that in recommending a simple maneuver to control the asphyxia of a whooping-cough paroxysm the profession will give him a favorable hearing. Unfortunately, his contribution has fallen by the wayside, for with few exceptions I can find no reference to it in medical literature. The mere fact that the standard works and writings of Henoch, Jacobi, Baginsky, Monti, Filatow, Marfan, Koplik, Holt, Genser, Seitz, J. Lewis Smith, Ashby and Wright, Eustace Smith, Griffith, and Dawson Williams, which refer *in extenso* to the various measures recommended, contain no mention of this procedure is, to my mind, a proof that the article has been overlooked rather than that it has been considered unworthy of note. In fact, the very recent contribution on whooping-cough by George Sticker,[5] while quoting a very extensive literature, also fails to mention Naegeli or his method. Whitla,[6] in his Dictionary of Treatment, and Escherich,[7] in his article on tetany, speak of it in passing. O'Dwyer and Norton,[8] under the heading of mechanical treatment, say: "Naegeli reported that in two children he succeeded more than five hundred times in apparently arresting the spasm of pertussis by pulling the lower jaw downwards and forwards. His experience, however, so far as can be found, has never been confirmed by other observers." H. Neumann[9] remarks that for arresting the attack it has been recommended to pull both cornua of the hyoid bone upwards for sixty to ninety seconds, or the lower jaw forwards. Eichorst[10] mentions at the extreme end of his article "manipulation of the lower jaw during the attack, as in chloroform anesthesia" (Naegeli).

Naegeli believes that the whole therapy of pertussis should very properly be directed to the glottis spasm, quoting Niemeyer as saying that "every paroxysm of cough is an irritant to the laryngeal mucous membrane; the more violent they become the more quickly fresh mucus accumulates and the sooner another attack is to be expected. If we can diminish the severity of the attacks of cough the course of the disease will be shortened." He then adds that if we could arrest the spasm of the

glottis the backbone of the disease would be broken. In this connection it is interesting to note the statements of O'Dwyer and Norton,[8] who, preparatory to their recommendation of intubation for relieving the spasm of the glottis in pertussis, say: "Spasm of the glottis is the sole cause of the acute suffering in uncomplicated whooping-cough, and could this element be removed the disease would be reduced to the level of an ordinary bronchial catarrh. The fear that children exhibit on the approach of a paroxysm, when they drop their playthings or other occupation and run to their mother or nurse for relief, is not the dread of the cough or the vomiting that follows, but of the torture that results from prolonged spasm of the glottis. In the adult this feeling is intensified by the sense of impending death, which can never be gotten over, no matter how often experienced. It is not the last hour that has come, nor the last minute, but almost the last second. The suffering is not due solely to want of air, because it begins the instant the spasm begins, and often when the lungs are well supplied with air. On this point one of the present writers (O'Dwyer) can speak from personal experience, having had whooping-cough when over forty years of age, and complete spasm of glottis from other causes many times. Spasm of the glottis being not only the sole cause of the acute suffering in pertussis but of most of the dangers as well, the main object of medication is the relief of this symptom." In describing an attack of pertussis personally experienced in 1886, Naegeli states that at the beginning of the paroxysm he felt as if a trap door had been lowered upon him and had cut off all the air; inspiration became impossible on account of spasm of the glottis, and frequently no mucus was expectorated after the paroxysm; there was a tonic spasm of all the laryngeal muscles, the entire respiratory muscular apparatus of the neck and the muscles of the face partaking of the attack. At the height of the paroxysm, despite a protruded tongue, a condition simulating trismus occurred. He states that at the beginning a minimum amount of air could be inspired with the well-known inspiratory crow, while at the acme of the paroxysm the cough was toneless. "Now," says he, "could the rima glottidis be opened again so that the inspiratory current would be sufficient, then the whoop, with its congestion and all its consequences, would disappear, as it were, with one blow." He then proceeds to show that Kappeler, in his experiments, has proven that the asphyxia of chloroform narcosis bears a great resemblance to that of pertussis, the difference being that in the latter, in addition to the mechanical closure of the upper part of the larynx, there is a closure of the glottis due to a

spasm of the cricothyroid muscles. Kappeler furthermore states that the most efficacious method for clearing the entrance to the larynx is undoubtedly raising the lower jaw after the manner of Howard and Heiberg, which consists in standing behind the recumbent patient, placing the thumbs on the symphysis of the lower jaw, the flexed index finger behind the ascending rami and pulling forcibly and directly forwards. Prompted by these experiments and results, Naegeli applied the maneuver to his own children of seven and four years respectively, who were ill with pertussis, trying it for five weeks, day and night, at least five hundred times in all. His results were brilliant at the first attempts, the cough stopping immediately when the lower jaw was raised. After a thorough application of this method he modified it as follows, according as he grasped the lower jaw from (*a*) in front or (*b*) from behind:

(*a*) When in front of the patient he placed the index and middle fingers on the rami in front of the ear, the thumbs on the chin, and with a forcible but gentle pull and pressure he pushed the lower jaw downwards and forwards. If the mouth was opened and the tongue extended he placed the thumb or index fingers in the region of the canines, the remaining fingers on the body of the lower jaw, and thus pulled downwards and forwards. Very frequently he placed only the thumb or index finger back of the lower incisors, the remaining fingers of that hand under the chin, and then manipulated the lower jaw as before mentioned, keeping the other hand on the forehead for counter-pressure.

(*b*) When behind the patient he placed both thumbs against the angle of the jaw, the index finger on the zygomatic arch, the remaining fingers on the chin, and thus pushed downwards and forwards; or the index fingers were placed in the mouth behind the canines, and thus aided in the manipulation. When the lower jaw had been raised the patients were directed to take a deep breath. It is understood that this statement applies only to older children.

With my cases, I have found that a single method practically answers every purpose, and so when in front of the patient I place the flexed index and middle fingers against the angle of the inferior maxilla, both thumbs alongside of the nose and against the superior maxilla, and then pull downwards and forwards. If behind the patient, I place the flexed index and middle fingers against the angle of the jaw, the thumbs along its body, the remaining fingers beneath it, and thus manipulate by pulling downwards and forwards.

It may be asked whether this maneuver or grasp, apart from its effect upon the paroxysm, that is, upon the glottis spasm and its resulting asphyxia, has any influence upon the character and course of the disease? With a dispensary clientèle which believes with the South German peasant that whooping-cough "continues till it stops," my observations were necessarily limited, for the greater part, to the effect on the paroxysms. It would follow as a logical sequence, however, that as the glottis spasm is the main element in the acute suffering, complications, and sequelæ of the disease, and that inasmuch as it is controlled by this method, it would be but natural to expect that the disease would be very materially modified in its severity and duration. In fact, Naegeli says that with this treatment the disease assumed a milder character; there was no vomiting; bleeding and complications due to increased blood-pressure were absent, the course of the disease was shortened, and the nights were not disturbed. Some may say that in Naegeli's cases pertussis existed in the attenuated or abortive form spoken of by Henoch, and hence the good effect upon the course, duration, character, and complications of the disease was only apparent, and would have occurred irrespective of this or any other method of treatment. Admitting this for argument's sake, it still remains true that the glottis spasm, the main element in the paroxysm, is efficiently and almost instantly overcome in the great majority of cases. It thus appears that this method brings about the objects of treatment formulated by Jacobi, namely, "to relieve the severity and diminish the number of the attacks, to procure quiet nights, to stop the vomiting, to shorten the course of the disease, and to prevent detrimental consequences." For mothers, nurses, and other attendants this method of pulling the lower jaw downwards and forwards for the control of the paroxysms is to be highly recommended. Every spasm cut short or arrested, every whoop prevented, spares the heart, lungs, brain, and nervous system from so much wear and tear.

At the beginning of my observations I thought that the good of this method could be attributed to the pulling forwards of the tongue which had fallen backwards. Soon, however, it was seen that severe paroxysms took place with the tongue protruded, and these were controlled by the aforementioned maneuver. Naegeli considers the effect of this manipulation due, firstly, to the reflex action, producing thereby a relaxation of the tonic muscular contraction, and secondly, to mechanical action, in that by raising the entire larynx and the hyoid bone the epiglottis is elevated and the rima glottidis perhaps opened. Whether this is the

proper explanation or not, or whether by this means the pneumogastric is stretched (counter-irritation) or the trachea elongated, with relief of irritation at the bifurcation, I do not profess to know. Certain it is, however, that by means of the manipulation the paroxysm is overcome immediately or in a few seconds in the vast majority of cases. With Naegeli's children the method was successful every time and vomiting did not take place except when no one was at hand to manipulate the jaw. The maneuver may be carried out while the child is asleep, so that any argument that the effect is psychical will not hold. The only contraindication to its use is the presence of food in the mouth or esophagus.

Naegeli states that very frequently spasmodic coughs due to other causes may be controlled by this manipulation, though I am free to confess that my experience in this direction has been rather disappointing. Escherich,[7] in discussing the laryngismus stridulus so commonly associated with tetany, says that Naegeli's maneuver, which arrests the attacks of whooping-cough, fails in these instances.

To sum up the results of my experience with Naegeli's maneuver for overcoming the spasm of the glottis in whooping-cough, I should say:

1. Pulling the lower jaw downwards and forwards controls the paroxysms of whooping-cough in most instances and most of the time.

2. The method is usually more successful in older children than in younger ones and infants.

3. In cases without a whoop the expiratory spasm, with its asphyxia, is generally overcome, and in those with a whoop the latter is prevented.

4. As a single therapeutic measure for the control of the paroxysms it deserves a place in the treatment of pertussis, and is as successful as any single drug, or even more so.

5. Mothers, nurses, and other attendants should be instructed in its use in order that the oncoming attacks, especially at night, might be arrested.

6. The manipulation is harmless, painless, and easy of application, without any of the ill-effects of drugs; it offers a maximum good effect with a minimum derangement.

7. The only contraindication to its application is the presence of food in the mouth or esophagus.

8. The patients treated in this manner are less likely to suffer from complications and sequelæ than those treated only medicinally; they emerge from the disease in far better condition, less exhausted, and less emaciated, because vomiting has been controlled.

9. It is advisable to try the maneuver in other spasmodic coughs and laryngeal spasms (laryngismus stridulus, pressure of enlarged cervical and bronchial glands, influenza, glottis spasm in catarrhal laryngitis), although my experience has seemed to show that it is far less efficacious in these conditions than in whooping-cough.

10. This method, being directed mainly to the control of the glottis spasm, does not preclude the advisability of supporting and sustaining the patient, guarding his gastro-intestinal tract, establishing equilibrium in the nerve-centers, and affording him every possible hygienic advantage.

11. It is particularly indicated in instances complicated with diffuse bronchitis, broncho-pneumonia, convulsions, epistaxis, subconjunctival or subcutaneous hemorrhage, or sublingual ulceration, and in those children who by virtue of age, the presence of rachitis, scrofula, or general debility are predisposed to serious complications and sequelæ.

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New York City.

A CASE OF GASTRIC SYPHILIS.*

BY H. A. LAFLEUR, M. D.

The following case seems to be worth recording for two reasons: First, the lesion was observed *intra vitam* in the course of an exploratory laparotomy; and second, the patient made a perfect and lasting recovery, up to the moment of writing, more than a year after the operation.

J. F L. C., thirty-nine years old, single, first came under observation in June, 1897. In the summer of 1896 he had suffered occasionally from severe pains in the hips and lower extremities, which would last a day and a night and then subside. During the following winter the pains had increased in frequency and severity. He described the pains as aching with occasional twitches and worse at night, sometimes preventing him from sleeping. The pains were not increased by walking or other exercise, and would sometimes be absent for a week at a time. He had no difficulty in walking, and did not stagger or stumble.

In 1892 he had a sore on the penis, lasting from March 24th to June 1st, and was treated for syphilis by a physician. Very slight, if any, secondary symptoms developed. From that time until the onset of the pains in his limbs he had enjoyed good health. Physical examination, when I first saw him in June, 1897, showed no organic disease of the various organs. Owing to illness, I saw him only at long intervals until the end of January, 1898, when he again consulted me for the same pains. These had been very severe, occurring every month, sometimes every two weeks, and had not been relieved by full doses of iodide of potassium. Eventually, however, the pains subsided gradually, and I did not see him again until November 23, 1901, when he consulted me for indigestion and diarrhea. The latter he attributed to a chill he had got while swimming, at the beginning of September, but he had been failing in health during the summer.

The stomach symptoms were flatulency, fullness, and a gnawing feeling in the stomach at all times, but worse after taking food. There was no definite pain, and his appetite had remained good, though he dreaded eating on account of the uneasy sensations that followed the

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ingestion of food. He was also nauseated rather often after food and occasionally vomited his meal unchanged, immediately or soon after eating. The diarrhea was soon controlled, but the other symptoms were not alleviated by restriction of diet, lavage or drugs, and throughout November, December, and January he became, if anything, worse. The vomiting, particularly, became more frequent; nothing seemed to agree with his stomach, but meat seemed to be borne better than any other food. During this time repeated examinations of the stomach contents were made after a test-meal, and invariably with the same result—an inert gastric juice, containing no hydrochloric acid, no organic acids, and devoid of any digestive action on coagulated albumen. Inflation through the stomach-tube showed a prolapsed and dilated stomach, the greater curvature extending below the level of the navel. The stomach washings contained, besides undigested food, small flakes of muco-pus, occasionally flecked with minute bloody points.

As the patient was steadily failing in weight and strength, it was decided, after consultation with Dr. Armstrong, to recommend gastro-enterostomy. While not declining an eventual operation, Mr. C. suggested taking a trip to the West Indies, in the hope that the sea voyage and rest would benefit him. He left in February for Jamaica, and was absent two months, during which time his symptoms remained the same and he continued to lose in weight. On his way back he consulted one of the most prominent clinicians in America, who concurred in the advisability of a gastro-enterostomy. I saw him soon after his return and was shocked at his appearance. He had lost thirty pounds since the beginning of his illness, and was so weak that the slightest exertion was an effort. There was, however, no distinct cachexia, and the color of the mucous membranes was fairly good. Before finally deciding on operation, the stomach was examined, and to my surprise it was found that on full inflation the greater curvature did not extend beyond a point half-way between the xiphoid cartilage and the navel. This seemed to make a gastro-enterostomy unnecessary, but it was thought advisable, nevertheless, to make an exploration, find the cause of the trouble, and if possible, remedy it. The operation was performed on May 14th by Dr. Armstrong, and the following account is transcribed almost verbatim from the hospital case-record, omitting only minor details of surgical technique.

Primary incision in mid-line, midway between ensiform and navel. Stomach presented; anterior wall held firmly to anterior abdominal

wall by thick band of adhesions, half an inch wide and one and a half inch long. This was divided, clamped, and tied. Other denser adhesions were felt below, behind and above, and prevented extrusion of the organ. The pylorus was found quite free. There was no tumor apparent to the touch, but extending from a point about two and a half inches from the pylorus over toward the cardia the stomach wall felt thicker than natural, and the surface of the organ in this area was characterized by a pinker shade and by scattered shallow puckerings. No glands could be felt in the gastro-hepatic omentum nor in the hilus of the liver, nor again could they be seen in the great omentum. The free edge of the liver presented a few nodules which were scraped and found to contain gritty calcified matter. There being no condition requiring a gastro-enterostomy, it was decided, in view of the abnormal appearance of the anterior wall, to open the stomach and expose the interior. The stomach was opened midway between the lesser and greater curvatures on its anterior aspect, the incision commencing about two and a half inches from the pylorus. This opened the stomach in the thickened area, and the following condition was found: Stomach wall thick, about one 1 c.m., in places 1½ c.m.; little bleeding; muscular tissue harder than normal. The everted surface showed complete denudation of the mucosa over an area extending completely around the stomach at the pyloric end of the incision. The same condition extended along the interior and anterior aspect of the stomach toward the cardiac end of the organ fully four inches. Here and there, especially toward the margins of the bared surface, there were small islets of mucous membrane having a rough cockscomb appearance and a purplish tint. The edges of the ulcerated area were well defined, serpiginous in outline and abrupt. The edge was very slightly heaped up and undermined, and just in the undermining angle was a whitish line. The surface of the ulcerated and denuded area was rather smooth, neither caseous nor necrosing, of a pinkish red color and almost bloodless. In the thickened area some cicatrization and contraction had occurred producing a certain degree of hour-glass contracture two or three inches from the pylorus. A slice of mucous membrane, a section through the muscular wall and mucosa, and a snipping from the edge of the ulcer were taken for microscopic examination. After extending the wound to give sufficient space, the exuberant edges of the ulcer were pared, the base was curetted, and the thermo-cautery lightly applied to as much of the ulcerated surface as could be reached, the very slight bleeding

following curettage being easily checked by the same means. The gastric and abdominal wounds were then closed by suture. The subsequent course of the patient's illness was quite uneventful. There was no recurrence of vomiting or gastric distress, and when he left the hospital on July 3d, he was taking a full and varied diet without the slightest discomfort, and gaining weight rapidly. Antisyphilitic treatment was commenced after leaving the hospital, and was continued with intermissions through the summer.

The examinations of the tissues removed at the time of the operation were made by Dr. P. G. Woolley, who reported as follows: The tissue from the base suggested malignancy, for there were small masses of epithelial cells surrounded by a fibrous stroma. But the edges of the ulcer were simply fibrous tissue and muscle, the former in excess, and there was no marked infiltration. The base was markedly inflammatory, not malignant.

The diagnosis of syphililic ulceration of the stomach is not one that should be made without careful consideration or without excluding beyond a doubt the possibility of the more common forms of solution of continuity, for gastric syphilis is admittedly a rare lesion, and I am quite prepared to admit that the burden of proof still lies with me. Carcinoma, which was at one time suspected, may be at once dismissed. It is not so easy, however, to say unhesitatingly that it was not an *ulcus simplex* of large dimensions, such as have been recorded in the literature from time to time. I would attach some weight to the facts that the patient had not been a chronic dyspeptic, and that anacidity and not hyperacidity existed from the onset of the illness. But the chief argument is drawn from the anatomical character of the lesion. Both Dr. Armstrong, who has had a very considerable experience in the surgical treatment of gastric ulcer, and myself remarked at the time of the operation on the unusual character of the lesion—the soft, redundant, somewhat overhanging borders, the dry and almost bloodless base, and the long tag-like adhesions on the external surface of the stomach—forming a picture quite unlike that seen in simple ulcer.

Microscopically, the lesion was the exaat counterpart, save in dimensions, of that described and figured by Dr. Flexner in Vol. XIII of the Transactions of the Association of American Physicians as one of syphilitic ulceration. The histological examination in the present case was necessarily incomplete, only small fragments of tissue being available for microscopic study. It is suggestive, however, that the same masses

of epithelial cells surrounded by a fibrous stroma described by Flexner in his case were found by Dr. Woolley in the tissue from the base of the ulcer. As regards evidence of syphilis in the other organs, it is probably not unfair to assume that the nodules in the liver containing gritty calcified material were the remains of a former gummatous infiltration of that organ. The clinical evidence of an antecedent luetic infection is certainly indisputable.

FIBROMATA AS COMPLICATIONS OF PREGNANCY.*

BY REUBEN PETERSON, A. B., M. D.

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Uterine fibromata as complications of pregnancy have been discussed thoroughly in the medical journals during the past two years. So true is this that if one were to judge by the number of such articles alone, he would be forced to the conclusion that the complication is met with more frequently now than formerly. Such, however, is probably not the case. A better explanation seems to be that here, as elsewhere, the obstetrician is attempting to rid himself of antiquated expectant lines of treatment for all cases, and is endeavoring to formulate rules for the adoption of the more modern surgical methods in certain other cases. During the past decade the technique of pelvic and abdominal surgery has been so perfected that at the present time we can advise safely and with complete confidence for the complication under consideration certain surgical procedures which would have been inadvisable and rash fifteen years ago. This does not mean, however, that every pregnant woman with a fibroid tumor should be operated upon. That the abdomen can be opened and one or more uterine growths be removed with safety at all stages of pregnancy, should not relieve the obstetrician from the necessity of studying carefully his cases, with a view of deciding which should be allowed to go to full term and which should be operated upon. Indiscriminate operating for the removal of such growths is as unscientific and objectionable as is the far too frequent practice of some surgeons to spend but scant time endeavoring to ascertain the exact nature of a pelvic lesion or abdominal growth,

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remaining satisfied with the thought that the diagnosis will be much easier after the abdomen is opened. Such methods are not only shiftless and unwarrantable, but they lead to unnecessary operations and often to grave mistakes.

If, then, we eliminate the two extremes of treatment of pregnancy complicated by uterine fibromata, operation for every sizable tumor, and non-operation, no matter how severe may be the symptoms, the problem before us is by no means an easy one. Its solving is worthy of our serious consideration, and should give food for thought even to those who consider all gynecologic and obstetric questions settled, and are passing upward in their operative work even beyond the diaphragm. The pregnant fibromatous uterus presents three factors for consideration. These are in order of importance:

1. The location of the growth, both with reference to other parts of the uterus and its relative position within the pelvis.

2. The size and mobility of the uterine tumor.

3. The period of gestation at which the growth is discovered or gives rise to symptoms.

1. *Location of the Growth.* Submucous fibroids, because of the resulting hyperemia and changes in the endometrium, are frequent causes of sterility or abortions during the first or second months of pregnancy. When the ovum is retained longer, the dangers of infection are increased, and in the presence of strangulated or sloughing submucous polypi death may result from absorption even when the products of conception come away or are removed. It is by no means always an easy task to dilate the cervix and remove fetus and membranes from a canal distorted by submucous growths. In certain cases hysterectomy, either from above or below, is much safer.

Interstitial and subperitoneal fibromata, while less liable to give rise to intra-uterine infection than are the submucous growths, are far more liable to produce pressure symptoms or to interfere mechanically with delivery. A tumor located in the lower uterine segment is most apt to cause trouble as pregnancy advances. It is liable to become wedged in the pelvis, as this part of the uterus does not rise relatively very far into the abdomen, and the tumor is not carried over the pelvic brim. A growth, on the other hand, situated higher up on the uterus, especially if near the fundus, is carried easily above the pelvic brim and only its extreme size will cause it to give rise to pressure symptoms.

2. *Size and Mobility of the Growth.* The smaller growths, if favorably situated, have been known to occasion sepsis and pressure symp-

toms. It is not common to see the larger tumors associated with pregnancy. If sterility has not resulted from the mucosal changes the weight of the tumor and its excessive blood-supply usually leads to an early abortion. It is not always easy to make a diagnosis of pregnancy in a large-sized fibroid uterus. Sudden and rapid increase in the size of the tumor mass should arouse one's suspicions, even if cessation of menstruation and other confirmatory signs of pregnancy be wanting. Some five years ago I removed a large fibroid from a negress of thirty-three whom I had had under observation for some months. The menstrual flow had not ceased, and the only signs of pregnancy were nausea and vomiting, which were ascribed to the pressure of the growth on the abdominal viscera. At the time of the operation I thought I had to deal with a large fibrocyst of the uterus. However, an examination of the specimen revealed a four months' fetus in addition to the fibroid formations.

Perhaps of more importance than size is the mobility of the growth. The less sessile and therefore the more movable the tumor the greater chance it has to rise above the superior strait as the uterus enlarges, or slip by the fetus as the latter descends through the birth canal. Perhaps the most dangerous complications as regards impediment to labor arise from intraligamentous growths, or those tumors whose lobes grow deep down in the pelvis. It is not uncommon in operating upon growths of this last variety in the unimpregnated uterus to be unable to lift them from the pelvis, even after the expenditure of considerable force, so tightly are they wedged. In the presence of such growths delivery becomes impossible without artificial aid. On the other hand, too great mobility, possible in the presence of a long pedicle, may prove dangerous, as it may lead to a twist of the latter. This complication should be borne in mind in the presence of sudden symptoms, as twist of the pedicle is known to be not uncommon in the pregnant woman, especially with ovarian growths.

3. *Period of Gestation.* Pregnant uteri, the seat of fibroid changes, may be divided into two classes, according to the viability or non-viability of the fetus. So great are the chances of miscarriage, where the complication under consideration exists, that before the viability of the child the life of the latter should receive but slight consideration as compared with the safety of the mother. After the sixth or seventh month, however, when the chances of a full-term pregnancy are much greater, the interests of the child must be considered almost equally with those of the mother. In the early stages of pregnancy attempts

should be made to lift the tumor above the pelvic brim, if it be situated deep in the pelvis, and if it is producing pressure symptoms. If this be impossible, or if the growth can not be retained in its new position, I would unhesitatingly, if pressure symptoms exist, advise its removal. As regards choice of operation, the same rules apply as in the non-impregnated organ except, of course, the cavity of the pregnant uterus can not be entered. Subperitoneal and even interstitial growths of considerable size can be removed and pregnancy be uninterfered with. I have reported recently a case of removal of an interstitial fibroid the size of a child's head from the lower uterine segment at the fifth month. The convalescence was normal and the pregnancy was not interrupted.

To my mind presure symptoms are greater indications for interference than the size or position of the tumor. I remember distinctly being called in consultation some years ago in the case of a negress four or five months pregnant. The uterus was multinodular, the lobes sprouting out in all directions. It did not seem that a woman with such a uterus could be safely delivered. Yet the patient, refusing operation, went to full time and had an easy, normal delivery. I was not present at the labor, but her physician informed me that the various lobes were lifted over the brim as labor progressed and the child passed safely through the birth canal.

If labor has already begun, and the position, together with the immobility of the tumor, makes it improbable that the fetus can pass through the pelvis, an abdominal operation is always preferable to the application of forceps or version. Nor should much force be used in attempts to lift the tumor or tumors above the pelvic brim. All of these attempts may easily be productive of laceration of the soft parts, with resulting sepsis, or if too great force be employed, rupture of the uterus may result.

The number, size, and position of the new growths will determine the exact nature of the operation, once the abdomen be opened. If there be but a single growth, and it can be removed easily, myomectomy may be performed and the labor allowed to continue by the natural channels This would be the exceptional case, however. The choice would lie between Cesarean section and supravaginal or panhysterectomy. Cesarean section may also be combined with myomectomy; that is, the incised uterus may be closed after enucleation of the growth. In the presence of multiple or unfavorably situated tumors undoubtedly a panhysterectomy would be best.

Ann Arbor, Mich.

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SURGERY OF THE HEART.

Surgical interference in injuries of the heart is of recent date, but the operations that have been performed have warranted suturing the heart-walls and other structures of that organ, as a comparatively large number of persons thus operated on have recovered. In this we have a valuable lesson, not only from a surgical standpoint but from a physiological standpoint, as it demonstrates the rapidity of nature's methods in cases of reparation of tissues. The frequent movements of the heart have, no doubt, caused many surgeons to hesitate and to finally decline any surgical aid, because to them it seemed impossible for reparation to occur in an organ where there is such constant motion. A second thought, however, would dispel this fear to some degree, when it is considered how the heart stands the wear and strain for a whole lifetime, undergoing repair during the period of rest between the beats, and possibly during its activity.

THE CLOSING OF PERFORATIONS IN TYPHOID FEVER.

Some two years ago we called the attention of the profession to the plain duty of the practitioner and surgeon in cases of intestinal perforation in connection with typhoid fever, and we again wish to emphasize what we said on that occasion, that it is the plain and imperative duty of every surgeon and practitioner in all such cases

to give the patient his last and only chance by opening the abdomen and closing the perforations. There is no longer any doubt as to what course to pursue in all such cases, as it has been demonstrated that many of these cases make rapid recoveries, even where the patient is apparently in a hopeless condition. It should be remembered that the real trouble is hemorrhage, and that there is no excuse for letting your patient bleed to death. Of course, it is always to be understood that these are desperate cases, and it should also be understood that it requires desperate measures to meet the indications in such cases. Your patient has probably one chance in two thousand to recover without the operation and probably one in two with it. Under such circumstances, why hesitate?

Current Surgical and Medical Selections.

The Connection between the Female Breasts and Genitals.—Temesvary (Journal of Obstetrics and Gynecology, June, 1903), in an exceedingly interesting article with the above title, says that while anatomically and developmentally the breast is an appendage of the skin, it is still correct to assume that it is part of the genital organs. He divides the experiences which prove the connection between the breasts and the genital organs into two groups, according as they show the influence of the genital organs on the breasts and milk secretions, and *vice versa*.

As showing the influence of beginning menstruation on the evolution of the breasts the author has collected seventy cases from the literature, in nearly all of which the early manifestations of puberty showed corresponding alterations of the mammæ. As another evidence of the connection, it is only necessary to consider the enlarged, sensitive, and painful breasts which sometimes accompany menstruation. Out of two hundred cases of vicarious menstruation collected by Puech the periodic hemorrhage is from the breasts, sometimes from one and sometimes from both. Cases have also been reported where coitus had caused contractions in the musculature of the nipple and its areola, and even the discharge of milk from the breasts. On the death of the fetus during pregnancy, without its expulsion from the uterus, the breasts become still more full and hard, and real milk is secreted instead of colostrum. This same phenomenon may be noted in cases of extrauterine pregnancy. If lactation still continues during menstruation the quantity of the milk is considerably diminished, and in some cases even the quality of the milk is changed. Freund observed colostrum discharged from the breasts in twenty-five out of forty cases of myomata. This same

thing is also noted in affections of the adnexa. Diseases and conditions which cause atrophy of the sexual organs, such as syphilis, tuberculosis, diabetes mellitus, and Basedow's disease cause similar alterations in the breasts. Cases of breast hypertrophy occur either at puberty or during the first pregnancy. Uterine troubles may also be etiologic factors in the production of this condition. After amputation of the cervix both hypertrophied breasts have been seen to return to their original size. Lucke first called attention to the fact that new growths of the breasts are very apt to occur during pregnancy. Recently it has been pointed out by Deapson that in cases of inoperable or recurrent cancers of the breast, where extirpation of the ovary is employed, associated with simultaneous administration of thyroidin, the mammary disease is either considerably improved or even healed completely. In seventy-one cases collected by Boyd, the cancerous disease was healed in seventeen cases by this treatment. In twenty-four cases there was slight improvement.

The writer then discusses the second group of cases, where the influence of the mammary gland is exerted upon the genitals. A stimulation of the nipple in some women gives rise to erection of the clitoris, contraction in the musculature of the pelvic floor, and occasionally even to ejaculations. The sucking of the nipples is apt to cause uterine contractions in pregnant women, sometimes even causing interruption of gestation. Scanzoni has even cured a case of persistent amenorrhea by applying to the nipple twice or three times a day a cupping apparatus. Others have been successful by the same process. It is a well-known fact that after parturition and during childbed the placing of the infant to the breast causes uterine contractions and after-pains. In two cases of atonic bleeding Rigby succeeded in checking the hemorrhage by this means. The writer made some observations as to the effect of suckling on uterine contractions. In one hundred and thirty-one women within the first eight days of childbed, the height of the womb in non-suckling women (measured from the symphysis to the fundus uteri) decreased by four and nine tenths centimeters, and in width by three and forty-two hundredths centimeters. In suckling women the diminution was much greater.

Frommel, Muller, and others have called attention to the effects of over-prolonged lactation, ending in a hyperinvolution of the womb, the so-called "lactation atrophy." Howitz has observed that lactation has also a favorable influence on myomata of the uterus, attributable to uterine contractions excited by the suckling.

The writer then considers the probable causes of this undeniable connection between the breasts and the female genitals. The connection may be reflex, that is, through the medium of the nerves, or it may be produced by the circulation in the breasts, or reversely. Finally, it is possible that a certain material exists which produces the milk secretion, and which, under certain circumstances, is retained in the blood, and accumulating there, reaches the breasts by way of the circulation and produces the milk.

Certain experiments on animals, where the spinal cord has been cut, shows that the latter can not play the rôle of the connecting path between the animals' genital organs and the lacteal gland. In other experiments the breasts were entirely freed from the influence of nerves. In spite of this, parturition took place in an entirely undisturbed manner, and lactation and milk production were not interfered with. Ribbert cut off the mammary gland of a young rabbit, together with the skin, and sutured it through wounds in the skin of the ears, where the gland became firmly attached. After the birth of two young ones later on, the transplanted breast secreted milk five months after the operation. This experiment shows conclusively that the blood-vessels do not form an indispensable path between the female breasts and genitals.

The writer is of the opinion that the stimuli from the genitals to the breasts are produced by a certain substance which is the product of the internal secretion of the ovaries. The blood circulation, the quantity of the blood flowing to the breasts, while influenced by the nervous system, plays only a secondary rôle. In the reverse direction, the stimulus is chiefly produced by the nervous system, and the blood circulation plays here a secondary part in the form of reflex hyperemia.—*The Physician and Surgeon.*

Blindness Caused by Paraffin Injections.—That the subcutaneous introduction of paraffin into the tissues, after the method brought out by Gersuny, is not devoid of serious consequences has been shown by a report recently made by Dr. L. Hurd at a recent meeting of the New York Academy of Medicine. The case reported was that of an individual who became blind soon after receiving an injection of paraffin for the relief of a nasal deformity. Two injections had been given with no dire results, but while receiving the third the patient suddenly lost his vision. The cause of blindness was an embolism of the central artery of the retina. The blindness is permanent.—*Medical Age.*

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

SURGICAL ASPECTS OF TUBERCULOSIS.*

BY A. DAVID WILLMOTH, M. D.

Professor of Surgery and Instructor in Laboratory of Clinical Surgery in the Kentucky School of Medicine, Louisville, Ky.

In the discussion of so broad a subject as surgical tuberculosis, it would be impossible for any man in one paper to cover the ground, and we will to-day discuss only a few of the most common phases of the disease.

In the outset, we wish to call attention to the frequency of the disease. While it is not spoken of and dreaded like the "epidemics of some diseases," yet when the death returns are consulted it is found that 20 per cent to 30 per cent of mankind are carried away by this malady. And we also find that it is a disease which concerns the surgeon as much or more than the physician, for in the average surgical clinic of the United States nearly 25 per cent of the cases of surgical diseases are manifestations of these affections, since, as you all well know, surgical tuberculosis covers all diseases formerly inaccurately described as "scrofula," this term being expurgated from our terminology, and there being no occasion to use it, save perhaps at times to explain conditions to the laity, who are not yet educated to the new term.

In the frequency in which structures are involved we find that almost every organ may be invaded; but in some its frequency is great,

*Read before the Muldraugh Hill Medical Society, Elizabethtown, August 13, 1903.

while in others it is rare. Of the former may be mentioned the lymph glands, brain and its envelopes, the lungs, pleura, peritoneum, bones, joints, and testicles, while in the latter we find muscles, ovaries, pancreas, and thyroid glands. As time will not allow a discussion of all of these, I shall confine myself to the most common ones, and in doing this we find that the lymphatic glands are involved more often perhaps than any structure that the surgeon is called on to relieve, the trouble here beginning most often as a secondary lesion, the infected antrum being a decayed tooth or an eczematous patch about the ear, face, or forehead. This is particularly so where the parotid, submaxillary, and cervical lymphatic glands are involved. It is possible, also, that a so-called catarrhal inflammation in the nose or pharynx may extend to the antrum, or more properly speaking, that the so-called catarrhal inflammation was a mild tubercular inflammation that disappeared when the glands became affected. The glands may become involved primarily, but this is rare, the secondary form being easy to explain as to frequency by the effort on the part of the glands to perform their function and strain out of the circulation (blood and lymph) such noxious material as would injure our economy if allowed to go in.

This causes the glands themselves to become involved, and the infection often proceeding from center to periphery, the filter as such becoming so choked that nothing seems to pass through, and by virtue of this surrounding infiltration, or as was at one time called periadenites, general infection is prevented to some extent, while the barriers are altered and natural distinction between tissues is lost, making the operative procedure for the removal and the complete extirpation of foci difficult or impossible owing to adhesions to large vessels and important nerves, and to other glands. The number of glands involved varies from one to an indefinite number. If many glands are involved, the hypoplastic inflammation causes a gluing together of the glands into a dense mass. With the exception of the neck, it is the exception for more than one region to become involved, while here, in the cervical region, both sides may become affected at the same time.

Another interesting feature is the regional dissemination of the infection, that is, if the infection primarily occurs in the superficial glands; then the glands that are irrigated by this set of vessels become involved, while, if the deep set are affected, the glands subse-

quently invaded are those along the deep blood-vessels of the neck, showing that infection occurs in the direction of the lymph-stream, but if extensive involvement takes place, then both sets may become involved at the same time, the infection from one to the other occurring as the result of communicating branches. As long as the entire chain of glands is not affected the patient is protected; but just as soon as this occurs infection becomes diffuse and miliary tuberculosis is the result.

The prognosis, however, is fairly good if we can see the cases early and remove the entire chain of glands. By so doing we stop the chances for dissemination; or, if this is not done, nature may accomplish a removal of the infection by an accidental infection taking place by pyogenic organisms, and in the resulting suppurative process the infection may be carried out. Here let me say that acute suppurative processes never take place only by the above methods in these glands.

The Treatment. As the infection is local, and the capsule of the gland holding the poison in a local depot, which can be broken only by caseation or suppuration, early operative interference is as essential in tubercular adenitis as in malignant growths, and holds out more encouragement so far as results are concerned. If taken while limited to the gland proper results are almost sure, while where the tubercular inflammation has extended to the surrounding connective tissue the operation becomes one of the most formidable ones in surgery, and the rapid return is almost sure. If the glands are suppurating, after an incision is made the curette should be used, and after removing all diseased tissue as thoroughly as possible, swab the cavity with 95 per cent carbolic acid, counteract the effects with alcohol after Powell's method, and pack with iodoform gauze. Those who refuse operation are best treated by tonics, etc., and absolute rest of parts.

Next in order of frequency to involvement of the glands and the lungs comes that of the bones and joints, and as it is not the intention of this paper to deal with that of the lungs, we now consider that condition arising in the bones. The affection differs here in no wise from that seen in the soft structures, the typical bacilli acting as a specific irritant and provoking, first, a typical tubercle, and later a typical granulation tissue, by whose ravages the distinctive signs of the disease are produced. This is an exceedingly frequent affection in children and young adults, its favorite location being in the epiphyseal extremi-

ties of the long bones; also in the short bones of the carpus and the tarsus, and some of the flat and irregular bones—as the ribs, scapula, and vertebræ. The occurrence of the disease at the epiphyseal line is easily explained by the fact that the tubercle bacilli while floating in the blood-stream become lodged at this point in a small capillary, due to the fact that the blood-stream is very slow at this point. After lodging, it finds a ready site to multiply, for the bone here is of an embryonal nature and of very low vitality. The pathology of the tuberculosis of bone may virtually be summed up by saying that it consists of the ravages produced by the presence of the granulation tissue with the irritative hyperplasia of the surrounding tissues, which its presence may excite even though they are not actively infective. The varieties of the disease in the bone are only two of which we care to speak—namely, that of acute miliary tuberculosis and that of chronic tuberculosis. The first variety corresponds to a similar invasion in the lung. It may run its course within a short time and cause such involvement of structures as to necessitate the amputation of a limb; or it may appear in the skeleton as a primary disease, and springing from here involve the viscera or the brain and its membrane, causing death in a few weeks after its onset. The other variety is the one most often seen, and in some parts of the world constitutes nearly one third of all cases applying for surgical treatment. The causes of the disease were at one time thought to be due almost altogether to trauma, while we now know that trauma plays only a part of the exciting cause in the production of this affection in the bones, the disease being produced by local foci of tubercular material, cheesy in nature, and perhaps too small to produce the affection of the tissue. This has been proven by those who have had an opportunity to study the cause from an experimental standpoint by fracturing bones of rabbits and other lower animals after they had been injected with the tubercle bacilli; and, also, all of us who have had very large experience in practice have seen many cases of fracture in those who were in a thoroughly tuberculous condition, and the fracture would unite just as quickly, and with as perfect results, as in the most healthy individual, thereby showing clinically that tuberculosis of the bone can trace only a small per cent of its cause to trauma. The symptoms of the disease are usually those of an ordinary inflammation in these structures, pain, tenderness, swelling, loss of function, and atrophy of the limb if the disease has advanced for any length of time. The pain met

with here, while constant, is not so severe as in acute suppurative inflammation of the bone, for the primary exudation is always scanty, and the inflammation is composed mostly of granulated tissue, thereby causing pain to be slight as compared with the more acute processes. The existence of the area of tenderness over a disease-seat in the periosteum is soon established, and is one of the surest indications of the existence of tuberculosis in the bone. The area of tenderness may be outlined by making pressure at different points with the tip of the index finger, and will correspond, enough for our purpose, to the size of the lesion; and, as to the swelling, the opinion once prevailed among surgeons that in all tuberculous involvement of the bone a marked enlargement took place. This is not always the case, unless it is in long bones, where we do usually have a spindle-shaped enlargement of the bone taking place as the result of nature's effort to localize the process by throwing out granulated structure or new bone. The most marked symptom in these conditions of chronic tuberculosis of bone is the atrophy of bone and muscle. This atrophy is not caused altogether by inactivity of the limb, but appears to be due in part at least to the tropho-neurotic lesions. In an exhaustive paper on this subject Duplay reviewed the various theories which have been advanced to explain the muscular atrophy in connection with tuberculosis of bones and joints, such as mechanical stretching and functional inactivity, to the propagation of inflammation to the muscles, and the vaso-motor changes, all of which appear insufficient. Most authors have accepted the reflex theory, namely, that the irritation of the ends of the articular nerves reflect back on the spinal centers, and form from there, upon these centers of origin, upon the muscular nerves. With these symptoms for use a diagnosis is usually made, for in ninety-five out of every one hundred cases chronic inflammation of bone means tuberculosis; unless there be especial reasons which should render the diagnosis doubtful, it is safe to adopt a treatment for that disease. There are a few conditions which may at times throw us off our guard; these are sarcoma, rachitis, syphilis, and the very rare condition of echinococcus. These usually, though, can be eliminated from the case by careful study. The sarcoma, for instance, has from the beginning a large and more rapid growth than a tubercular swelling, and is the seat of pulsations and blowing sounds when it reaches near the surface; in central sarcoma pathological fractures are common, while exceedingly rare in tubercular trouble. Now rachitis, while it

is characterized by pain, tenderness, and swelling near the ends of the bone, is not limited to one bone like tubercular lesion; and in syphilis the virus has a special predilection for the periosteum, while in the other, lesions of this structure are exceedingly rare. This leads us up to treatment of this important subject. The treatment consists, like that of tuberculosis in other parts of the body, in constitutional and local treatment. Under the constitutional treatment comes the care of the patient, dietetic and hygienic treatment being of vast importance, along with tonics and reconstructives. With it comes the local treatment of physiological rest, which is of vast importance; and the most efficient way to procure this, not only for the diseased part, but for the entire body, is to confine the patient in bed. But as this condition is noted for its chronicity, it is impossible to keep the patient in bed all this time; therefore, we must resort to some form of dressing to fix the affected parts, immobilizing them as nearly as possible, so that the patient may be permitted to change rooms and be moved about to get the advantage of fresh air and scenery, this form of treatment being used for those cases that are at the beginning of the attack far advanced in the disease, and perhaps after operative processes have been gone through. All those cases seen early are amenable to this treatment for only a short length of time, then some form of local treatment other than this must be practiced. After we are sure that an active process is going on in the bone, and we are able to outline this, it then becomes our duty to give the patient an operative treatment by making an incision over the diseased area, and then with the chisel and mallet we chisel our way into the cavity of the bone, if a long one, and after getting in there proceed with the curette to the removal of all the disease structures. After doing this the cavity should be packed with iodoform gauze, and either kept packed until healing takes place from the bottom, or it should be injected daily with the solution of iodoform in oil, either alone or with balsam of Peru, for it is well known clinically that iodoform has a special curative influence in this line of disease. If the disease is located in an irregular bone, and one that can be removed without destroying the framework of the body, a complete removal should be done. If the condition exists in a long bone, and as to such an extent complete removal would be impossible without amputation, it then becomes necessary, in order to save the patient's life, to sacrifice the diseased limb at a point far enough away to get in healthy tissue.

The next in order of frequency comes the joints, and to hasten briefly over the symptoms, suffice it to say that the first thing noticed is the enlargement of the joint. This was thought at one time to be due to enlargement of the bone, but we now know it to be due to thickening of the capsule and to the effusion into the capsule and tissues surrounding the joint, which may become so great as to force the bones apart, and the joint becomes freely movable and simulates a neurotic joint.

Pain, while present, varies in intensity. Deformity is due to the contractions, and indicates more or less destruction of the joint structures, and the patient assumes the peculiar gait so as to limit the motions as much as possible; and, also, the posture is due to changes that have occurred in the integral structures of the joint itself.

The treatment should be rest, which is secured either by putting the patient in bed or placing the limb in a fixed dressing; however, at the beginning of the attack extension is, in my opinion, better than a fixed dressing. Along with these measures we may use the method of Bier, which consists in producing congestion of the joint, a means that can be produced by the careful adjusting of bandages, but one that must be carefully guarded or serious damage can be produced.

Next in order, if these means fail, may be tried the injection method of iodoform in glycerine or oil which has been made sterile; this should be from 10 per cent to 20 per cent solution (not more than that), and the urine should be looked after closely, for if intoxication is produced parenchymatous nephritis will result. If during the time this is being done shreds begin to pass from the wound, the joint should be freely incised and drained and then injected. If we fail in this, we have left to us a resection of the joint, and if conditions are not too bad this will give a useful limb. If, when we open the joint, the structures are so involved that we can not remove every vestige, then amputation must be done.

The next subject that we care to notice is one of the most important, and one in which it is the hardest for us to decide just what to do and when to do it. It is that of tubercular peritonitis. Involvements of the peritoneum are often obscure, and may be primary, but most often are secondary to involvements of the mesenteric lymph nodes. It may also be secondary to involvement of the intestines, lungs, or other organs of the body. It may arise during the course of the various infective diseases, especially the exanthemata. The condition may or may not be ac-

companied by exudation into the peritoneal cavity. From the pathological standpoint we wish to consider three varieties. First, in miliary form with ascites, acute or subacute in form. Second, the fibrous form, in which ascites may be present, but usually is not. This variety is essentially chronic, and is complicated with matting of the intestine, omentum, or mesentery, and has very little tendency to break down. The third variety is a later stage of the form just described, and in which there occurs large tubercular deposits, with caseation and softening; and in this variety ulcerations are common and the lungs are frequently involved. It is not so chronic as the fibrous form, but is characterized by more fever and more severe symptoms.

The symptoms in infancy and early childhood are so varied and so unsatisfactory that it is impossible to determine at first that we have tubercular trouble of the peritoneum, and, also, that no other organs are involved. In many cases the examination fails to give us this knowledge, and if the temperature is high, as from 102° to 104°, it would be impossible for us to determine this question. If, however, the temperature is low, from 99° to 101°, we may, by the use of the tuberculin test, be able to arrive at a conclusion. If, after making a diagnosis, we decide that the trouble is fairly well localized, even though the lymph nodes are involved, we should give the patient the benefit of the doubt and laparotomy should be performed. The most favorable form for operation is miliary tuberculosis of the peritoneum with ascites, while the less favorable form is that which we have spoken of above as the fibrous form, which, however, is more favorable if ascites is present. So, again, I would call your attention to the fact that the miliary form of tuberculosis of the peritoneum is very unfavorable in the first year of life, for then it is usually complicated by a general tuberculosis of other parts of the body, and an operative procedure would avail nothing, owing to the activity of the process elsewhere.

We first consider the age in determining whether we would operate or not; if the patient is under one year, we may operate only as a last resort. If over this age the ascites is present, we have a fairly favorable case to deal with; and in the third variety the probabilities are that it is secondary to a thoracic tuberculosis, and as a rule can not be benefited by laparotomy. The primary forms, on the contrary, had much better always be operated on even when the lymph nodes are involved; for with the removal of these nodes there is a fair chance for a radical

cure of the peritonitis. There have been cases of tubercular peritonitis which have recovered spontaneously; but, however, if this can occur it does not indicate that we should wait for the danger of a localized trouble becoming disseminated and attacking such vital organs as the lungs or brain. It seems far more reasonable to operate early and relieve the local trouble. If the operation is done by one who knows how, the dangers are practically none.

To summarize, in those cases that we operate on, the presence of fluid, with few or no adhesions and the absence of tuberculosis elsewhere, are the most favorable class; or, the absence of fluid does not preclude a successful operation, and as the degree of intestinal adhesions can only be surmised before operation, laparotomy would seem indicated in all cases provided the general condition of the patient permitted, and that there is an absence of cerebral, glandular, or bone involvement.

Before leaving this important subject we will have a few words to say in regard to the tuberculous involvement of the genito-urinary organs, limiting ourselves, however, to that of the testicle and the bladder. The trouble, where it begins in the testicle, usually begins in the globus major, according to the experience of most authors, but which has been doubted by some, Erichson in particular, who believes that the trouble attacks the globus minor more frequently than the one above mentioned. However, this is disputed, because it is well recognized that the division of the spermatic artery opposite the epididymis slows the blood-stream and allows infection to become deposited at this site. If we admit the fact that infection does sometimes occur from without through the uretha, then I can readily see how the globus minor would be the first involved. The differential diagnosis of this trouble is to be made from that of a simple or specific epididymitis by the following points: History, location of the swelling, absence of pain and woody hardness, etc. The treatment is that of tuberculosis in general, along with local incisions, removing all the diseased areas if possible and dressing the wounds with iodoform or balsam of Peru. This, perhaps, will relieve the more simple cases, but the majority of them will require the complete removal of the entire testicle and the spermatic cord high up. If both sides are not involved this may give a fairly satisfactory result; if both sides are involved, then the results are very unsatisfactory and the operation should be discouraged, and even in the other form the results are not the most brilliant.

Tuberculosis of the Bladder. This variety is rare as a primary disease, usually secondary, with involvement of the peritoneal cavity, and owing to this fact the trigone is the part usually attacked. The symptoms are very much like those of calculi in the bladder, and the diagnosis must be made, between the two diseases, by the points with which you are all familiar. After we have made up our mind that the tubercular trouble exists, it will then tax our ingenuity to know what to do. Suffice it to say, that with our present knowledge the treatment is not satisfactory, but the best that we can offer is a thorough drainage of the organ through the perineal route, and then with local applications of iodoform and methyl blue give the patient the best chance for recovery.

LOUISVILLE.

SETONAGE IN EMPYEMA.

BY JOHN SEYMOUR HOSKINS, M. D.

Some years ago, having attended a case of empyema in a child five years of age and employed the aforementioned method with success and advantages superior to the ordinary operation, I will give a description of it. The left pleural cavity was involved, with great distension of intercostal spaces and heart pressed to right side, with apex of heart directly below right nipple.

I first introduced hypodermic needle between fifth and sixth ribs into the pleural cavity at the usual site of aspiration, to prove the existence of pus. Then, with aspirator, drew one fourth pint, covering the needle wound with pad of absorbent cotton. This operation was repeated twice, at intervals of two or three days. Each aspiration was stopped when patient showed distress in breathing or signs of exhaustion. Noticing a small veined swelling, one inch measurement, long diameter, at lower border of pleural cavity in line with nipple, I recognized nature's attempt to get rid of pus. To prevent sloughing of already softened skin, I ran a needle, double-threaded horizontally, through the tumor. The thread was cut to hang four inches below the openings of entrance and exit of needle. The distance between the openings depend on size of the tumor, say one fourth of an inch, within line of opposite borders. This permitted slow drainage. A large wad of cotton to absorb pus was placed upon the openings, after permitting

slight drainage for one or two minutes. (Aspiration was performed with assistance of Dr. Keightley.)

Visiting patient every morning, the threads were slightly moved, say one sixteenth inch, in order to loosen up gluing of openings during the night. This is necessary, for there will be renewed draining at each point, which will continue during waking hours of patient, to commence again when threads are loosened at morning visit. The threads remained as seton until pus ceased draining away. This period was of short duration, lasting but a few days. The aspiration and setonage were done with patient in sitting position. Recovery was rapid, with no deformity and entire absence of the painful features of rib resection and the disagreeable gurgling sounds incident to use of drainage-tube and antiseptic injections.

A special feature of setonage is non-introduction of fluids to wash out cavity and non-admission of air, and if certain of existence of pus by previous use of hypodermic exploration, aspiration and the dread-inspiring pump can be dispensed with altogether. If tumor of "spontaneous opening" be present, use it for setonage. If not, I think the operation might be safely practiced in any intercostal space so situated as to favor drainage. The operation is equally applicable to effusion of pleuritic fluid, as it is a foreign body, thus saving the circulatory forces the absorptive process. Of course, this is an experimental suggestion, as my experience is limited to empyema. Résumé of advantages: No fear-inspiring instruments, no resection of rib, no deformity, absence of drainage-tube and daily washing, non-admission of air.

LOUISVILLE.

MEDICAL ASPECTS OF TUBERCULOSIS.*

BY S. N. WILLIS, M. D.

The importance of the subject forced me to try to comply with the request of the Society to write a brief paper on this subject.

Tuberculosis is a chronic infectious disease, caused by the bacillus tuberculosis, which was discovered by Koch in 1882. It is in almost every quarter of the globe, and is more prevalent in certain localities than others, and may be said to prevail more extensively in warm climates than in cold. All ages, from the embryo to old age, suffer from its effects. No nationality or race is exempt from its ravages. The mulatto is said to be more susceptible to the disease than any other race. It may develop in any tissue to which the bacilli have found their way.

No one will question that the method of infection by the tubercle bacillus is by inhalation, inoculation, and sometimes by ingesta. However, in man it grows deep down in the tissue of the lungs. When the invasion is by inoculation it is usually mild and confined to the lesions of the skin, with slight systemic disturbances.

Statistics show that one seventh of the yearly percentage of deaths are due to tuberculosis, and it is conservatively estimated that one hundred and fifty thousand persons die annually in the United States from some form of consumption. Environment and parentage play an active part in a predisposition to tuberculosis, and thereby lessen ability to resist the infection. An early diagnosis is the main thing. Many means and ways for the diagnosis of incipient tuberculosis have been suggested of late years, but all of them are either tedious, harmful, or insufficient. With our means of physical diagnosis, inspection, palpation, auscultation, percussion, mensuration, etc., we can do much toward making a satisfactory diagnosis.

The initial signs in most cases of phthisis are crepitation and slight dullness in the supra-scapular region. It is the locality of the physical signs rather than their character which is of importance. Signs of no significance at the base of the lungs are very serious at the apex. Loss of chest expansion is a serious symptom.

The microscope furnishes us another means of making our diagnosis. If at first the results are negative, the examination should be

*Read before the Muldraugh Hill Medical Society, Elizabethtown, August, 1903.

repeated until you are thoroughly satisfied that you have no trouble or get positive results. I will not speak of the X-ray, as I expect to hear from others on that. Have the patient come to your office or go to his room. Take time, take notes; make repeated examinations if the first is not satisfactory.

To be able to make a positive diagnosis in the incipient stage is often a difficult problem. By incipient cases I mean those in which both the physical and rational signs point to but slight local and constitutional involvements. Advanced cases are those in which local disease process is either extensive or in an advanced stage, or in which, with a comparatively slight amount of pulmonary involvement, the rational signs point to grave constitutional impairment or to some complication.

We often have a mother come to the office to consult us in regard to the little one's troubles, it being restless, peevish, and fretful, with loss of appetite, losing flesh, some diarrhea alternating with constipation, slight fever, etc. We make a hasty examination and an off-hand diagnosis and give her a prescription, and the child gets no better; she gets discouraged, and by the influence of knowing friends she is induced to try something else, and that is the last we see of our patient. It passes to some other doctor, or a patent medicine nostrum is resorted to, the patient never receiving the attention the gravity of the case demands.

The young man or woman who has been confined to the house, workshop, school, store, etc., begins to lose flesh; has indigestion, constipation, some cough, and night sweats. The young lady, in addition, may have suppression of menses, spitting of blood, and other troubles. They seek relief in a bottle of liver regulator or some guaranteed cough cure, and rely upon them until the golden moments have passed.

We certainly ought to do what we can to make a positive diagnosis at an early date. Then what is to be done? Give plainly to the patient and family the serious nature of the prognosis. Shall we fold our hands, wipe our eyes, and bid our patient good-bye forever, or will statistics justify us in saying that a great many are cured, others greatly benefited, and all made more comfortable?

In incipient cases 75 per cent are cured. In advanced cases about 25 per cent are cured and 25 per cent benefited. What shall we do for them? First, we want to convince them that they can be cured or benefited. We want the full confidence of our patient; not only the patient, but the parents, and a promise to take treatment long enough

to do some good. If you can not get that promise do not begin with the case, as it only brings medicine into disrepute and does the patient no good. Assure them that the journey to recovery is a long and tedious one, and it is only by their faithful observance of all requirements that you hope to benefit them and "profit yourself."

I would not be understood as claiming a panacea for all classes of cases. No, far from it. Neither would I try to locate any climate that is a cure-all. Climate, so far, is but an experiment. A place that is good for one is a failure for another, but there is one thing all agree upon, and that is sunshine and fresh air. The place that gives us the purest air and greatest number of sunny days is the best. High, dry, cold climate is the best for most cases, but do not try too high an altitude at first.

Next in order is good diet. That which is easiest to digest and most nutritious is what is needed, for appetite is often wanting. It is easy to instruct your patient to take two or three raw eggs three times a day, and two or three pints of fresh, sweet milk as often, but to get them to take it is a task, when the parents are standing around ready to say, "He can't do it, as our people never use milk, butter, eggs, beef, or mutton," and in short, anything you may suggest they would object to. Feed as you give medicine; give positive instructions when to feed, what to feed, and how to prepare it, and see that they do it. Do not overfeed, for that may cause intestinal trouble, sour and sick stomach, colic, cramps, and diarrhea.

In advanced cases with high fever, confine them to bed in an open room, or better still out of doors, and continue in bed or reclining position until fever subsides. Complete rest and but little company. Those who are able to be out may do well with exercise short of fatigue, but always take a rest after meals. A nutritious diet, that is easily digested, and rest in a reclining position long enough for digestion to take place, is very essential.

With these few introductory remarks to my paper I will now turn to materia medica, but I will promise not to worry you with long quotations or my great experience with the treatment of tuberculosis with medicine. Antiseptics head the list—internally, externally, and eternally. Not that I expect to destroy the bacillus internally, but to cleanse the mouth and alimentary canal and prepare for digestion. The stomach and rectal tube might be used to advantage. Antiseptics externally in strength sufficient to destroy the bacillus. Sputa should

be received in paper boxes and burned. All soiled clothing, bedding, matting, etc., should be thoroughly disinfected for protection of others, and to prevent reinfecting the patient.

Specific Measures. Serotherapy, cacodylates, and iodine offer the greatest aid in preventing organic changes. Iron and bitter tonics judiciously used are of great benefit. Strychnine is one of the best, as it tones up the heart's action and increases the appetite. Iron, peptomanganate to increase the red blood corpuscles, and have a microscopical examination to see if they increase; if not, a bad prognosis. Beechwood creosote and carbonate of creosote have been lauded highly, but I find some persons who can not take either form. Laxatives occasionally when constipated do great good; astringents when diarrhea is troublesome if you can not control it by high enemas. In short, meet the demands; see your patient often enough to ascertain what he needs. Have him come to your office if able; if not, go to his room regularly, that he may feel that you are interested in him, and continue treatment. Cod liver oil, with a little tonic at bedtime, two hours after the regular meal, is a good builder, and does not interfere with digestion.

VINE GROVE, KY.

THE ROENTGEN RAYS IN TUBERCULOSIS.*

BY M. F. COOMES, A. M., M. D., LL. D.

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In discussing the value of the Roentgen ray in tuberculosis, one is reminded very much of what Herbert Spencer said on the occasion of discussing a certain abstruse subject. He said that it was difficult to write about a subject of which there was nothing known, and about which nothing could be definitely known; so it is with the subject under consideration. There is so little known that is of value concerning the treatment of tuberculosis with the Roentgen ray that it is very difficult to say much of anything that will be of value, aside from the statement of the fact that up to the present writing the clinical reports are anything but encouraging; that is, reports that are reliable.

In the early history of the Roentgen ray as a therapeutic agent, many marvelous reports were made as to cures that had been wrought, but few

*Read before the Muldraugh Hill Medical Society, Elizabethtown, August 13, 1903.

of these reports were worthy of consideration, because of the very imperfect manner in which they were made. Many, and in fact most all of them, were lacking in correct diagnosis, hence the results were valueless because of the incorrectness of diagnosis. In pulmonary tuberculosis, up to the present date nothing definite has been presented upon which any positive opinion can be based as to the curative effects of the ray in this disease. A few favorable reports have been made, but they have been in persons who no doubt received other treatment, and it is impossible to say whether the Roentgen ray or the other treatment brought about the improvement. I have had one case for more than six months whose chest has been exposed almost daily during that time. The patient has rather a large cavity in the upper portion of the left lung, and at the time that he consulted me he was expectorating some blood and pus, and in this mass were found large numbers of the tubercle bacilli. He weighed one hundred and fifty-two pounds when he began the treatment, and at this writing he weighs one hundred and fifty-one pounds. Now, in addition to the Roentgen ray, he has been taking an average of one hundred and forty or more drops of creosotal each day, and the very best food in the way of beefsteaks, butter, eggs, and milk, so it will be seen that this case does not prove that the Roentgen ray is doing any good, as we all very well know that many cases do well on such treatment without the Roentgen ray. The patient has expectorated blood only once during this treatment, but that does not prove that the Roentgen ray has stayed the hemorrhages or the progress of the disease. Taking all things into consideration, the most that can be said at present for the Roentgen ray in tuberculosis is that it can be used in connection with other forms of treatment, but it should not be relied on as a curative agent, because the clinical facts do not show that it possesses any such value. In lupus it certainly has a most beneficial influence, and I think can be safely relied upon to do what can not be accomplished otherwise.

In the future we may find out more about the application of the X-rays than we know at present, for our knowledge to-day is very meager, but that the X-ray is a valuable adjunct to medicine and surgery there can be no doubt. The great regret is that it has fallen into so many incompetent hands—incompetent as to the management of the machine and also as to diagnosing of the diseases that it should be applied to. When these mistakes have been corrected, much more reliable results will be obtained from the use of the Roentgen ray.

LOUISVILLE.

GIANT-CELLED SARCOMA OF LOWER JAW. RESECTION WITH PROSTHETIC USE OF SILVER WIRE.*

BY EDWARD ARCHIBALD, M. D.

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E. F., aged twelve. Admitted May 7, 1903; complaining of a lump under the tongue.

History. Five years ago the child fell on her chin against a chair, cutting the skin, but without sustaining any further injury so far as could be ascertained. Three years ago a small purple-colored lump made its appearance at the junction of the lower lip with the alveolar border of the jaw and exactly in the middle line. It was not accompanied by pain; nor was there any toothache. Two years ago the growth had attained the size of a walnut, and protruded above the lip. At this time her doctor operated, removing the growth under ether. He told her relatives that it was connected with the bone, which he scraped. The wound was packed with gauze, and was dressed daily for three months, when it finally healed. At the dressings no pus or dead bone was ever seen.

She remained well up to three weeks ago, when it was observed that a lump was forming a little to the left of the former swelling. Since then this lump has grown rapidly to about twice the size of that first noticed. The growth has never caused any pain; nor has it ever been tender on pressure. The child has never had a serious illness. The family history is negative.

Present Condition. A well-nourished girl, with good color; all her organs healthy; the only lesion found is the jaw tumor.

Condition of Jaw and Mouth. There is visible externally a slight bulging of the chin just to the left of the middle line, extending along the bone for about an inch. The skin over it is normal. Inside the lip, the swelling is seen to occupy the alveolar border, and extends from the space between the first bicuspid and the canine tooth on the right side to the first molar on the left. It is not so prominent as to protrude the lip. The four lower incisors are absent, having been removed at the first operation. The mucosa covering the growth seems normal. The swelling feels soft, yet elastic. It has a bluish

*Reported in the Montreal Medical Journal.

look, but is not compressible; nowhere does it feel bony, and palpation causes no pain. The root of the left canine is slightly exposed; but probing discovers no dead bone.

It is impossible by palpation to assure oneself as to whether the growth involves the center of the bone, or only the periosteum. Although on the left side of the chin, the bulging seems to involve both alveolar border and body of the jaw; the inner surface, toward the mouth cavity of the bone, is plainly not abnormal. No egg-shell crackling can be made out. One minute nodule is felt in the left submaxillary region, suggestive of the enlarged gland; but it is so small as to be uncertain.

A clipping removed from the growth and examined microscopically confirmed the diagnosis of sarcoma, and afforded the further information that it was of the myeloid variety.

In the consideration of this case, two points appealed to me as being of especial interest; first, the question of the degree of malignancy of the giant-celled sarcoma, with the corollary of the extent of the operation to be undertaken; second, the question of the deformity and the loss of function entailed by resection of the lower jaw, and the prosthetic work necessary to obviate these.

While, in the minds of most surgeons, to name the name of sarcoma —whether spindle, round, or giant-celled—has been sufficient to indicate the most radical operation, there has been growing up lately a tendency toward more conservative treatment. I speak here, in the case of jaw tumors, not of the sarcoma epulis, which has never been considered materially malignant, but of the endosteal growths. Endosteal sarcomata are in the great majority of cases giant-celled in type, with a greater or less admixture of spindle or round cells. It seems certain that, clinically, these are the most benign of all sarcomata. Nélaton used to deny even that they were real tumors, and called them hypertrophies of the bone-marrow, but doubtless this was going much too far.

Nevertheless, metastases from myeloid sarcomata are certainly rare, and recurrences after wide removal very infrequent. While we still know practically nothing as to the essential nature and significance of giant-cells, the belief is probably widespread that the more purely giant-celled a sarcoma is, the less is its malignancy.

In 1889 Fedor Krause[1] reported from v. Volkmann's clinic four cases of endosteal jaw sarcoma treated only by local curetting and

chiseling. In all, cure resulted, although in one there were six recurrences. In another case affecting the tibia, cure was permanent 2¾ years after operation. In a late number of the Johns Hopkins Bulletin, Bloodgood[2] takes up the question, and reports upon seven giant-celled sarcomata from Halstead's clinic treated by more or less conservative operations, all with good results. He reviews the literature of the question in Progressive Medicine, December, 1902, page 150[3], and concludes that it is justifiable to attempt to remove myeloid sarcomata first by curetting and chiseling alone; if recurrence appears, by resection; and by amputation only when a very great amount of bone is involved, or when the surrounding soft parts are infiltrated.

In view of this evident tendency towards conservatism, and because of the considerable mutilation involved in a wide resection of the lower jaw, one might have entertained, in the case here reported, the idea of a purely local scraping and chiseling operation, with conservation of a posterior bridge of apparently healthy bone. Nevertheless the contra-indications seemed sufficiently definite. The present growth was a recurrence; it had increased rapidly in size; it already involved a considerable portion of the jaw; if originally endosteal, it had by now certainly broken through the bone and invaded the gum and soft parts of the chin; and, in the microscopical section of the clipping the sarcoma was far from being of the pure giant-cell type. For these reasons a wide resection was planned. There came, in the second place, the question of how to obviate the deformity and loss of function necessarily resulting.

Operation, May 15th, under Ether. Resection in the usual way through an incision running along under surface of jaw below the chin, the first molar on each side being extracted and the bone sawn through at those points. The right molar would have been saved, had it not been completely carious; soft parts dissected wide of the bone both in front of and behind the chin. A hole was then drilled through either stump; and a length of strong silver wire, heavy enough to retain firmly any shape given to it, yet light enough to be easily moulded with the hands, was passed through the hole in the left stump, forming a loop. The two free ends were brought over to the right side, and the wire was worked into an anterior curve approximating the contour of the chin, the two strands being fixed at a distance of about three-fourths of an inch from each other in the vertical direction. I may say here, however, that this distance became later, whether by pressure of

the stumps, or by manipulations in the latter part of the operation, somewhat reduced.

One free end of the wire was then passed through the hole in the right stump from inside to outside, cut off short, and the end clinched with hammer into the compact bone. The other free end, cut to the proper length, was shoved about half an inch into the spongiosa. It was now found that the loop in the right stump allowed some sliding in the transverse direction; it was therefore clamped down close to the raw edge of the stump, forming a sort of O. The mucous membrane of the lip was then united by interrupted catgut sutures to that of the floor of the mouth without undue tension, thus covering in the silver wire from the oral cavity. The bunch of chin muscles, mylo-hyoid, genio-hyoid, and genio-hyo-glossus, was sutured in one mass with two or three chromicized catgut sutures to the base of the tongue. Finally, the skin wound was sutured, leaving gauze drainage at either angle.

The after-course may be summarized in a few words. The patient was allowed to swallow a little water six hours after operation, which she did without difficulty. The control of the tongue, it may be said in passing, was very satisfactory from the first. Ordinarily in extensive chin resections, it must be carefully held forward with a silk ligature through the tip for several days. In this case the silk ligature was removed on the morning following, as being evidently unneeded; and no doubt the explanation lies in the fact that, by the insertion of the wire and by the suture of the mucous membrane, the normal relations of tongue fixation were largely restored. Three or four days after operation, it was found that all the catgut sutures uniting the mucous membrane on the left side of the mouth had given way; whether from infection or from a too early use of the tongue it is hard to say. This left a large cavity toward the skin wound, which has since granulated in satisfactorily. The retention of the stumps is almost perfect. On the left side the one remaining molar articulates exactly with the upper one; on the right side, it is drawn inwards so as to articulate in only half its surface with the corresponding upper one. The movements of the stumps are good; but the patient is still unable, or perhaps unwilling, to bite anything with the two teeth left.

The chin is well preserved, but the lip shows a slight tendency to be drawn inwards, though not enough to be deforming. The wire seemed, until several days ago, to have healed in perfectly; but at that time (about June 11th) there developed at the right angle of the skin

incision, previously well healed, a sinus, which does not communicate with the month. On probing this sinus, the bare silver wire can be felt; and the suspicion is natural, that the end of the wire shoved into the spongiosa of the bone may have loosened and be now inducing local suppuration. Even if such be the case, one need hardly doubt but that a small secondary operation to secure this wire-end more firmly in the bone will succeed in closing the sinus.

Description of Tumor. The jaw being sawn through from before backwards about the middle of the body, it is seen that the bulk of the tumor occupies the medulla of the bone; and there can be no doubt but that it was of endosteal origin. The anterior shell of the body is perforated very extensively by the neoplasm, which, invading the soft parts, produced the swelling seen clinically. Posteriorly the layer of compact bone is not materially destroyed. The growth is reddish and friable, and contains one cyst, about the size of a small marble, which contained slightly hemorrhagic fluid. The soft tissues are apparently dissected wide of the growth. No glands are to be found.

The full microscopic examination by Dr. Keenan was as follows:

Sections of tumor show tissue to be that of a typical myeloid sarcoma. The cells are of two classes; one, large irregular multi-nucleated cells; one, small mono-nucleated round or fusiform cells. The multi-nucleated cells contain from three to ten round vesicular nuclei, and occasionally nucleoli, nuclei are scattered irregularly through cell protoplasm; there is a very small amount of interstitial substance. Blood-vessels are fairly numerous, with thin but definite walls.

In planning the prosthetic work in this case, two main points had to be considered. First, the age of the patient. Being twelve years old, she has as yet only two molars. In her eighteenth year, or probably a little before, she will get her third molar; and still later her wisdom tooth. Second, the extent of the resection planned, which was to leave her with, at present, only one molar in either stump. Probably the best prosthetic method is that which holds the stumps in position by a temporary splint, whether wire or interdental, during healing, and inserts thereupon a permanent dental apparatus with teeth. In the present case this was rendered impossible, or at least very difficult, by the fact that not enough teeth were left to which to attach a permanent apparatus. Anything permanent would be better applied later, when the patient had acquired the rest of her second teeth. For the intervening years some kind of support was needed, which would keep the stumps

from being pulled inwards and preserve the chin contour. The idea of silver wire, to be used as above described, occurred to me; and on looking through the literature, I found some analogues and two precedents.

C. Hofmann[5] reports in 1900 his use of silver wire, which healed in permanently, in a large defect of the lower jaw following osteomyelitis. The result was excellent.

Pearce Gould[6] in 1897 reported a case of the use of silver wire. The wire later "became shifted, and appeared through the cheek, and the man removed it himself." The advantages of silver wire are evident; owing probably to its antiseptic action, it is able, as has been demonstrated, to heal in even in septic wounds. It is easily handled; it is adaptable to large defects, and is easily inserted. In all that concerns the dentistry of this case I must acknowledge here my great indebtedness to Dr. E. B. Ibbotson, dentist of the hospital, who has freely aided me with his advice.

Our plans for the patient are to provide her later with a light removable apparatus to hold out the chin and to prevent undue scar contraction; and still later, when she has attained full growth, with three solid teeth in either jaw, to insert a permanent plate with teeth.

So far, apart from the development of the small sinus, which I expect to heal ultimately without trouble, the result has been excellent.

The X-ray picture taken with the plate under the chin, and the tube a little in front of the forehead showed the extent of bone destruction.

Inasmuch as the chief *raison d'être* of this article is to give a preliminary report of an attempt at immediate lower-jaw prosthesis, it may not be uninteresting at this point to review briefly the literature of the subject in so far as it has been found accessible. Unfortunately much of it is contained in foreign dental journals not available here for reference. This kind of work seems upon the whole to have been decidedly neglected until just lately in England and America as compared with France and Germany.

Martin,[4] of Lyons, seems to have been the first (1889) to write at any length upon the subject. I have not been able to obtain his work, but his method is briefly described in an extensive article by Hahl[5] in Langenbeck's Archiv, in which the French and German methods are contrasted.

The Lyons school, represented by the work of Ollier and Martin, fasten in during the operation an apparatus of hard rubber corresponding exactly to the size of the portion of jaw removed. After weeks or months this is replaced by a smaller permanent appliance.

The Berlin method, worked out by Von Bergmann and Sauer, fills in the defect only after healing, but before scar contraction sets in; and endeavors, especially in lower-jaw resections, only to keep the stumps in normal condition during healing.

Finally, Gluck and Warnekros modify the Ollier-Martin method by putting in a permanent prosthetic appliance at operation; implanting it, as it were, and expecting it to heal in.

Martin's "appareil primitif" was made of hard rubber, and was secured by pegs or screws to the stumps, or by clasps to the teeth where any teeth were left. It was built in two parts, one corresponding to the body of the jaw, the other to the alveolar process; and the lower portion was again made in two halves to facilitate removal. It was supplied with a system of canals and with a tube for purposes of cleansing.

Of the cases reported by Martin, half healed *per primam*; while in the rest the apparatus seemed to cause considerable inflammatory trouble, with a good deal of pain.

Gluck and Warnekros believed they obviated these dangers by using metal instead of rubber; by a more perfect fixation and a more perfect asepsis.

Hahl, from whom I quote the above details, proceeds, without discussion, to describe the Von Bergmann-Sauer method, as practiced in Berlin for the previous decade (1887-1897). From an experience of forty-five lower and eighty-one upper jaw resections, all treated prosthetically after operation, his conclusions may well be said to command attention.

In the case of the lower jaw, Hahl sets up three groups, according to the location and extent of the resection.

1. The chin is removed. Here a wire splint is intercalated during healing. If two or three good teeth remain, the wire is wound round them on either side. If no teeth remain on one side, the wire, fork-shaped, is shoved into the spongiosa on that side. The wire is shaped before operation; and the material used is either gold, aluminium-bronze, or nickeled steel.

Where all the teeth were lacking, Hahl used either Bönnecken's wire-bridge, fork-shaped at either end in such a way as to embrace the stumps, or else a solid metal spindle-shaped body large enough to support the lip, and provided with two sharp points at each end which were shoved into the bone and fastened by wire ligatures. In all these cases, as soon as healing was complete, the wire splint was removed, and a broad hard-rubber splint, with wing-like processes toward the jaw

stumps, covered with black gutta-percha and attached to an upper plate by a spiral spring, was immediately inserted for permanent use.

2. Cases where a portion of one lateral half of the jaw was removed, the chin remaining intact. Here a sort of stick, made of gold or of aluminium-bronze, of the size of a lead pencil, was inserted in the usual way by means of sharp forked ends into the spongiosa, and made fast by wire ligatures. This was left to heal in permanently.

3. This group comprised cases in which the whole of one-half of the jaw was removed. In these Sauer's device of the "shiefe ebene" or slant splint was used. This is a splint attached at an incline to the outside of the teeth of the sound side, in such a way that, when the mouth closed, the upper teeth, impinging on the splint, forced the lower jaw outwards. It was inserted at operation and fulfilled the great indication in these cases, that of preventing the in-falling of the sound half of the jaw. This was worn by the patient until the permanent plate was inserted or longer, if there remained any tendency towards in-falling of the sound side. The details as to just how the permanent plates in these cases are fastened in, which is after all a question of pure dentistry, are very incompletely given.

Various other surgeons have devised modifications of the above-described principles, mainly in the direction of temporary supports during healing. McBurney[7] used in three cases of excision of one half of the jaw, first, an interdental splint; then, when complete cicatrization had occurred, a spiral spring, which, fastened to the cuspid of the lower jaw, and taking its support from an upper molar on the other side, held the lower jaw in position until the muscles of that side were sufficiently educated; finally, replacing this, a permanent rubber plate with "plumper." The result was excellent in all.

Sir Wm. Stokes[8] devised a splint of wire, so twisted as to present two arms at either end, which embraced the jaw-stumps and held them apart. This had the advantage over the rubber interdental splint, that it allowed of easy irrigation, and that it did not have to be removed for feeding.

Pearce Gould,[6] after failing in one case to get silver wire to heal in, tried in two other cases a steel bar with reverse screws. In one, the bar healed in well; in the other it worked loose and had to be removed.

Stanley Boyd had used a knitting-needle, which became displaced and had also to be removed.

Cryer,[9] of Philadelphia, reports his prosthetic work in a case of J. Wm. White's. His technique seems to have been practically the same

as that of Martin above described: a temporary vulcanite splint, followed in six weeks by a permanent one, carrying eight teeth, and attached by wire to the capped teeth (two last molars) remaining on either side.

Berndt[10] reports four cases of resection of one half of the jaw, in which he inserted at, or soon after operation, a celluloid pessary-ring, moulded so as to approximate the shape of the portion removed. Although sinuses gave trouble for some time, the celluloid ultimately healed in permanently in all four cases. Deformity was obviated, and the function of the remaining side was preserved.

Bardenheuer[11] and others, disbelieving in foreign bodies in the mouth for prosthesis, have devised, where the defect was not too great, various plastic operations to bridge the gap with bone. Some of these have been successful, but their usefulness is evidently limited to small defects.

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INSANITY IN IMBECILES.*

BY WILLIAM MILAN EDWARDS, M. D.

Medical Superintendent of the Michigan Asylum for the Insane.

Dr. A. F. Tredgold (Journal of Mental Science, January, 1903) writes fully on the subject of insanity in imbeciles and gives abstracts of illustrative cases. He says insanity is rarely met with in the more pronounced grades of amentia, but is comparatively frequent in the higher-grade imbeciles. But scant attention has been given to this subject in the literature. He gives some description of the general characteristics of the high-grade imbecile, but does not enter into a full discussion of these cases. He says that one of the commonest statements is that they have not learned at school; particularly he finds that arithmetic is a great stumbling-block, and they have not passed the third, second, or often the first grade. Such persons learn to walk and talk late, and dentition and development are retarded. He states that the cases of insanity in imbeciles that he has seen have been in those of high or medium grade, but it by no means follows that all high-grade imbeciles are liable to be so afflicted. Those who become insane have nearly always for some years before the actual outbreak been prone to strong fits of irritability, moroseness, sulkiness, or acts of violence or have wandered away from home and caused much trouble by restless disposition.

The author divides the high-grade imbeciles into two groups, the mentally stable and the mentally unstable; insanity occurring among the latter class, and he considers this instability the most important factor in its production, exciting causes playing a minor part. In a mentally unstable imbecile the chances of his passing through the third decade without becoming insane are very small indeed. Institutional life of the right kind, begun sufficiently early, would probably do much to prevent insanity in such persons. In the mentally unstable imbeciles that came under his observation he was able to say that in ninety per cent there were morbid hereditary influences present.

Pathologic research has shown that in the idiot there is a paucity of imperfectly developed and irregularly arranged nerve cells and processes, but in the imbecile the cells more nearly approach the normal in both number and degree of development, the principal change being

*Reported in the Physician and Surgeon.

an irregularity of arrangement. He thinks there is no doubt that the degrees of pathologic change cause the variations of mental capacity which exist in the different types, and while the idiot is capable of little beyond reflex action, the higher-grade imbeciles are possessed of good perception, of mercury, of emotion, and of ideation. They are, however, deficient in the power of concentration, of continued application, and of comparison. Their appreciation of their surroundings, is, therefore, inaccurate and their higher faculties of deliberation, judgment, and control remain undeveloped. This absence of the higher faculties and the consequent absence of the inhibitory action over ideation and emotion seriously endangers the individual's sanity. In uncontrolled ideation the primary idea rapidly assumes such dimensions as to entirely alter the individual's mental attitude toward his surroundings, hence delusions result and may be of identity or persecution, fixed or rapidly changing, and their existence soon brings about a condition of mania or melancholia. Hallucinations often figure largely in the ideational type of insanity.

Uncontrolled emotional actions characterize another case. Emotional storms of a transient nature may be present before the actual outbreak of the insanity, and though of short duration are closely allied to true insanity. In the course of time these outbreaks become more severe and prolonged, until finally they last for weeks and present all the features of acute mania or melancholia.

All the cases of insanity in imbeciles which Dr. Tredgold has seen conform at first to one or the other of these types, and therefore appear to be the direct consequences of imperfect development of the higher mental faculties with its associated instability. It is said that the first attack in these persons usually appears between the ages of puberty and adolescence, and some of the cases may be mistaken for adolescent insanity and so classified. This is important from the prognostic point of view. The type of insanity is chiefly mania or melancholia; mania, the most common, occurring in fifty-five per cent of all cases, and melancholia in from forty to forty-five per cent. General paralysis occurs probably to the extent of two or three per cent. Delusions can be ascertained in about two thirds of the cases. He eliminated all cases in which epilepsy was present from those from which he deduces his conclusions. The ideational variety of insanity was found in the greater number of cases. Melancholia existed in nearly half the cases, a larger proportion than in the non-imbecile class of insane, the probable

explanation being that the temperament of these patients is more apt to be gloomy, owing to general poor health. Suicidal attempts occur in two thirds of these melancholy patients, and form real and definite efforts to put an end to existence. Improvement is noticed early and the acute condition may only last a week or a month, and rarely continues longer than two or three months. There is, however, scarcely any class of patients in whom recurrence of insanity is so likely to take place as in these imbeciles, and the greater number discharged from asylums will be back within a few months or a year at the most. As a rule the second and subsequent attacks are of the same clinic type as the first, but in fifteen per cent the subsequent attack is different from the primary, but the tendency in the end is to become more and more apathetic until dementia is established. Many of the patients seem to improve under firm and judicious treatment, and the diminished severity and frequency of the outbreaks would appear to indicate that their power of control is in some degree capable of development, but probably not to a sufficient extent to enable them to be freed from supervision. Their future depends largely upon the patience and intelligence of their attendants.

KALAMAZOO, MICH.

THE CHOICE OF METHODS IN THE TREATMENT OF CANCER.*

BY G. BETTON MASSEY, M. D.

The first requisite in the treatment of malignant diseases of any kind is immediate action. A case of bubonic plague introduced into a large city is not more dangerous to the health of the community than is the first small appearance of a cancerous nodule to the general health of the individual affected. The certainty that the isolated infection in the nodule will give rise to daughter growths elsewhere in the body is so great that the common habit of procrastination on the part of patients can only mean that they have absorbed from the medical profession either a doubt of any method being efficacious in the disease, or the equally wrong and hopeless view that cancer is the "pointing" of a general constitutional affection. The onus in either case is laid at the door of physicians, and it is high time that we fully awaken to the

*Reported in the Physician and Surgeon.

issues involved and make it clear to ourselves as well as to our patients that this disease, whether parasitic or not, is strictly local at its inception and capable of eradication in this stage, and that the second stage of systemic invasion may occur at any moment after the implantation of the local disease. That the general invasion is usually postponed for weeks or months, in accordance with the individual virulence of the germ or cell, has apparently not stimulated our patients to immediate action in utilizing this fortunate interval, but rather caused further delays, and it is to be feared that many physicians when consulted fail to realize the importance of this brief respite from actual metastasis, and the hopelessness of the case only after this extension has taken place.

It is too true that the interval between the appearance of the growth in a recognizable form and its internal dissemination may be so slight as to thwart the efforts of the most energetic, but what can be said in extenuation of the neglect that permits weeks or even months to elapse between recognition and action!

As to the method of eradication of an accessible growth seen in this curable, or so-called operable, stage, there can be no doubt in the mind of any one who has witnessed the method of immediate destruction and sterilization by the massive cataphoric diffusion of mercury, introduced by the writer. The knife and curette have unquestionably the dangerous property of implanting the germs of the disease in the cut edges of the wound, unless, indeed, a far distant amputation is practicable. By the cataphoric method, applied under general anesthesia usually, the nascent oxychlorids of mercury and zinc are dissolved from electrodes thrust within the growth, causing an immediate, sterile necrosis of the growth proper and a sufficient dispersion of the germicidal salts beyond its apparent limits to sterilize the surrounding tissues for an inch or more. All morbid cells are killed *in situ*, those contained in the growth coming away as an inodorous slough, while the cells in the sterilized zone about the growth are absorbed as debris. When it is understood that this total destruction can be accomplished in from one half to two hours, with practically no after-discomfort to the patient, it is evident that we are possessed of so ideal a method of eradication of this dangerous guest that we are no longer warranted in delaying a day in its accomplishment.

The choice between this method and *x*-radiation is a question of much greater importance in growths classed as inoperable. As a gen-

eral rule, it may be said that a combination of the two methods is often here desirable, the cataphoric destruction being carried as far as possible, if it can not be made to reach the furthest limits, followed by radiation as soon as the slough comes away, which happens in from seven to twenty-one days after the application. By this simultaneous attack growths that are most extensive may be successfully coped with, the preliminary destruction and aseptic removal of the major portion by the cataphoric operation opening a way for deeper penetration of the rays, and at the same time preventing the absorption of toxins during the radiation of large growths.

When the growth is not so accessible, as in the case of those situated in the nose, mouth, vagina, uterus, or rectum, the cataphoric method will usually have to be depended on alone, whether the case is classified as operable or inoperable.

PHILADELPHIA, PA.

THE MODERN THERAPY OF SEPTIC PUERPERAL AND SURGICAL INFECTIONS.*

BY ROSWELL PARK, M. D., LL. D.
Professor of Surgery, University of Buffalo.

The most efficient measures for the treatment of surgical infections are the various silver preparations, for whose introduction into surgical and obstetrical work we are indebted to Credé, of Dresden. We have been for decades looking in vain for an effective antiseptic which is devoid of marked toxic or irritating properties. Allotropic silver (collargolum) seems to offer us the nearest approach thereto. Between this silver preparation, which is so bland, and the silver salts, like nitrate of silver, there are the lactate and citrate of silver, also introduced by Credé, of which reasonably strong solutions can be used upon quite sensitive surfaces without producing much, if any, disturbance.

Let us first take the aqueous solution of soluble metallic silver (collargolum), which in the strength of 1 to 300 in distilled water makes a somewhat cloudy solution. In this strength it may be used by intravenous injection in cases of severe general or puerperal sepsis, rapidly spreading gangrene, acute articular rheumatism, or other serious infec-

*Abstracted from the Alpha Omega Delta Bulletin, March, 1903, and reported in the Maryland Medical Journal.

tions; in fact, solutions as strong as 1 to 100 may be employed, it being desirable to introduce 6 cg. (.9 grain) to 10 cg. (1½ grains) at least. If there be difficulty in injecting it into a vein it may even be given beneath the skin. Unpleasant effects will not be noticed; neither will any immediate relief follow, but the solution thus introduced coming in contact with the blood, which in these cases is swarming with germs, will promptly begin its bactericidal work, whose effects should be manifested after two or three hours by a fall of temperature and amelioration of septic symptoms. Silver used in this way has been of great service in cases of carbuncle, and even of acute anthrax. Moreover, its administration may be repeated as often as may seem necessary.

When metallic silver is made into a suitable ointment (unguentum Credé), which, by the way, much resembles mercurial ointment, and is then applied to the skin, there is a rapid absorption of the silver itself, with its dissemination into the blood-stream, and results like those just mentioned. It is simply a somewhat slower method of introducing it into the system. For many years I have held and taught that the combination of resorcin, ichthyol, and mercurial ointment, which I believe I introduced into surgical practice, was the most effective remedy for the treatment of erysipelas and all similar septic infections. To-day I have found but one combination which I think superior for this purpose, and that is the the silver ointment, unguentum Credé.

Advantage may also be taken of the properties of metallic silver by giving it internally as an intestinal or urinary antiseptic, for which purpose it should be given in pills or capsules. These are unirritating and extremely efficient, and may be given where remedies like salol, benzosol, etc., are ordinarily exhibited.

Lastly, I would speak of the use of lactate and citrate of silver, not only for such purposes as the preparation of catgut, silk, gauze, etc., but in solutions of from 1 to 300 to 1 to 500 for the irrigation of septic cavities, and for such purposes as washing out the peritoneal cavity in cases of tuberculous peritonitis, for which I have repeatedly used it, and always with benefit. I differ from my friend Dr. Fenger, of Chicago, now dead, who did not favorably regard washing out the abdominal cavity in these cases. In my own experience, in several instances, a flushing of that cavity with a 1 to 500 solution has been of the greatest apparent benefit, and has never occasioned any regret. Infected bladders, uterine cavities, and vaginas may be advantageously, freely, and

frequently washed out with similar solutions. When using them, one may have the feeling that he is using solutions of greater efficacy and of far less toxicity than any of the mercurial preparations would afford. Therein lies the beauty of these preparations, that in anything like equal strength they are more effective and much less toxic than the mercurial salts.

This is a very brief epitome of my views regarding the value of the silver preparation in surgery. I often state in my clinic that the good old-fashioned nitrate of silver is not used nearly so much as it should be, and prove the strength of my conviction by its general use in 1 to 10 per cent solutions in pus cavities. Not only is a full germicidal effect obtained, but also that stimulation to healthy granulation which the nitrate is well known to afford. All in all, if I could have but one source for antiseptic solutions and applications, I would rather look toward the preparations of silver than in any other direction.

BUFFALO, N. Y.

Reports of Societies.

THE MULDRAUGH HILL MEDICAL SOCIETY.

The regular session of the Muldraugh Hill Medical Society met at Elizabethtown, on August 13th, with a large number of physicians present from different parts of the State. The meeting was one of the most successful in the history of the Society. The meeting was called to order promptly at 9.30 o'clock by Dr. O'Connor, the Vice-president from Hardin County, as the President, Dr. McChord, was absent. It being the annual election of officers, after all those present had registered the balloting began and resulted in the election of Dr. D. C. Bowen, of Nolin, President, with the following members as Vice-presidents from their respective counties: Dr. M. F. Coomes, Louisville; Dr. T. J. Green, Leitchfield; Dr. R. C. McChord, Lebanon; Dr. Sam Stith, Elkton; Dr. D. W. Gaddie, Hodgenville; Dr. J. J. Adams, Munfordville; Dr. H. D. Rodman, Bardstown; Dr. Basil Taylor, Greensburg; Dr. A. T. McComack, Bowling Green; Dr. Atkinson, Campbellsville; Dr. Bates, Shepherdsville, and the re-election of Dr. Willmoth, of Louisville, as Secretary. After the regular routine of business had been

dispensed with it was thought best to dispense with the reports of cases, as all the essays were in, and the reading of these and the discussion would take up the day.

The first paper on the program was the "Report of some Interesting Cases," by Dr. Taylor, of Greensburg. This was a very interesting paper and was enjoyed by all, and discussed by Drs. Gaddie, Cheatham, and Frank.

The next paper was one by Dr. Cheatham, of Louisville, on "Trauchoma," which was thoroughly dealt with, and many important points were gained by all present.

Afternoon Session.—When the meeting was called to order in the afternoon, Dr. Aud, of Cecilia, moved that Dr. Jerome Smith, of Hodgenville, who has the honor of being the first President of the Society, as well as one of the oldest, most highly respected, and beloved members of the same, be elected an honorary member for life; this received a unanimous vote.

The Symposium on Tuberculosis was next on the program, and the following papers were read: The Medical Aspects were discussed by Dr. Willis, of Vine Grove, and the Surgical Aspects were discussed by Dr. Willmoth, of Louisville, and The Trouble as Seen in the Eye, Ear, Nose, and Throat, by Dr. Pfingst, of Louisville, and the X-ray Treatment of the disease was discussed by Dr. Coomes, of Louisville. These papers were discussed by a number of members present and brought out many important points in the management of the cases. The meeting adjourned, to meet in December.

In discussing Dr. Taylor's report of cases, Dr. Gaddie said, in reference to the shoulder-presentation case, that he could see no reason for a doctor pulling the arm off, and thought that it was due to a lack of knowledge of the management of such cases, and in regard to the case of double ovarian dermoids he thought it rather strange that the woman should become pregnant, although the dermoids did not involve the egg-bearing parts of the organs, but thought that changes would be brought about which would prevent conception.

Dr. Cheatham said, in discussing diphtheria, that he thought where antitoxin was used the operation of intubation was rarely called for.

Dr. Frank said that he thought the doctor should be commended for his operations, and said that the keynote to all operations for intestinal obstruction, so far as success was concerned—whether in connection with hernia or not—was in early work.

Dr. Atkinson said that he had seen one child delivered where the arm had come down as in the case of Dr. Taylor, but that it was after two doctors had worked all night in replacing the arm.

Dr. Aud said that we could not prevent shoulder presentations, but that the profession could prevent such doctors, and he commended the doctor in the work he had done.

Dr. Schachner said that in the cases of obstruction he had reported certain cases, and had tried to bring out certain truths which should be driven home and clinched, for in bringing out such truths was the cream in the report of cases, and that in the case of hernias, appendicitis, gall-bladder trouble, etc., it all depended on early work, and also said that the per cent would be far different if the surgeon was called in first instead of last, and that most cases of obstruction in children were intussusception cases.

In the discussion of the Symposium on Tuberculosis—the medical aspects of it—Dr. Adams said he thought that we might lower the high death-rate by sanitary methods, and that the pain in the chest could be relieved by strapping the chest and keeping the patient quiet, for in case of cavity it might become broken down.

Dr. Smith, in discussing the surgical aspects, said that he would like to have heard the views of the essayist on the trouble in the pleural cavity, and thought that at least 1 to 2 per cent were operable.

Dr. Abell said, in discussing the same paper, on the condition in the testicle, that it usually came from the mediastinal lymph glands, and that the testicles could be removed with fairly good results, and in the peritoneum that only in the first stage and for obstruction should operation be done.

Dr. Frank said, in the discussion of Dr. Coomes' paper on the X-ray Treatment of Tuberculosis, that he thought the rays were used too indiscriminately, but that they would do some good but should never supplant radical surgery, and said that the rapid symptoms were due to mixed infection.

Dr. Schachner said, in the discussion of the trouble in the glands, that no operation should be done unless all the glands could be removed, and said that while surgery in the neck was unsatisfactory, it was due to the fact that it was done in an improper place and perhaps by men who could not do the radical work. In regard to the peritoneum, that out of twelve cases only one was benefited, but in the joints, and especially the

knee, the results were very good indeed, and that there was practically no shortening.

In the discussion of Dr. Pfingst's paper on Laryngeal Tuberculosis, Dr. Cheatham spoke of the husky voice as one of the earliest and surest signs, and said that he thought primary trouble was rare in this structure, and that he had only seen one case get well, and as to the use of orthoform, that he thought it was capable of causing ulceration.

Dr. Strother thought that orthoform was one of the best treatments, and that the condition should be studied.

Reviews and Bibliography.

The Prevention of Diseases. Translated from the German. With an introduction by H. Timbrell Bulstrode, M. A., M. D. (Cantab.), D. P. H., Medical Department of H. M. Local Government Board; Lecturer on Public Health in the Medical School of Charing Cross Hospital; Honorary Secretary and Member of Council of the Epidemiological Society of London, etc. In two volumes. Funk & Wagnalls Company, 30 Lafayette Place, New York. 1903.

This work is presented in two volumes, making a total of nearly one thousand pages. It is certain that no more important subject confronts the medical profession to-day than the prevention of disease. The old saying that "An ounce of prevention is worth a pound of cure" still holds good, and while the profession as a class understand to a great degree the ordinary methods of preventing disease, there is much yet for them to learn, and a perusal of this book will enlighten them on many important subjects, of which they presume to be conversant now. There are many subjects considered in the book of very great importance, which are overlooked every day by the practitioner of medicine, and there can be no doubt but that the reading of this valuable work by the profession at large will result in bringing about many reforms in the daily practice of medicine. The book is written by many authors, all of great experience, which makes it the more valuable. We commend it to the profession.

The Diagnosis of Diseases of Women. A Treatise for Students and Practitioners. By Palmer Findley, B. S., M. D., Instructor in Obstetrics and Gynecology, Rush Medical College, in Affiliation with the University of Chicago; Assistant Attending Gynecologist to the Presbyterian Hospital, Chicago. Illustrated with two hundred and ten engravings in the text and forty-five plates in colors and monochrome. Philadelphia and New York: Lea Brothers & Co. 1903.

This is a book of some five hundred pages, devoted to the diagnosis of the diseases of women. It is intended for students and practitioners of medicine. The author in his preface says: "Medical literature in the

English language has not hitherto included the work on this subject. In the effort to supply this desideratum the author has aimed to satisfy the requirements of those who have felt the need of more comprehensive and practical information than can be given in the general text-books on gynecology. It is hoped that this work will be serviceable to those who do not have access to foreign literature." There can be no doubt but what such a work as the one under consideration will be a valuable aid to students and practitioners. It is well written and beautifully illustrated, and from the bookmaker's standpoint is an ideal.

We predict a large sale for this book, as any chapter in the work is worth the price of the whole volume.

The Practical Medicine Series of Year Books. Comprising ten volumes on the year's progress in Medicine and Surgery. Issued monthly under the general editorial charge of GUSTAVUS P. HEAD, M. D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Obstetrics edited by REUBEN PETERSON, A. B., M. D., Professor of Obstetrics and Gynecology, University of Michigan. The Year Book Publishers, 40 Dearborn Street, Chicago. April, 1903.

This is the April number of the Practical Medicine Series, and is devoted to the subject of obstetrics. It is edited by Reuben Peterson, professor of Obstetrics and Gynecology in the University of Michigan. Great care has been observed in the compilation of this new work, and much attention has been given to data concerning pregnancy and other subjects dealt with by the author in this work. The complications of pregnancy receive a very liberal consideration, and the work, taken as a whole, is a valuable addition to medical literature. It is condensed, and therefore is a ready-reference book for the practitioner.

A System of Physiologic Therapeutics. A practical exposition of the methods, other than drugging, useful in the prevention of diseases and in the treatment of the sick. Edited by SOLOMON SOLIS-COHEN, A. M., M. D., Senior Assistant Professor of Clinical Medicine in Jefferson Medical College; Physician to the Jefferson Medical Hospital and to the Philadelphia, Jewish, and Rush Hospitals; one time Professor of Medicine and Therapeutics in the Philadelphia Polyclinic, etc. Prophylaxis; Personal Hygiene; Civic Hygiene; Care of the Sick, by JOSEPH MCFARLAND, M. D., Professor of Pathology, Medico-Chirurgical College, Philadelphia; HENRY LEFFMANN, M. D., Professor of Chemistry in the Woman's Medical College, Philadelphia; ALBERT ABRAMS, A. M., M. D. (University of Heidelberg), formerly Professor of Pathology, Cooper Medical College, San Francisco, and W. WAYNE BABCOCK, M. D., Lecturer on Pathology and Bacteriology, Medico-Chirurgical College, Philadelphia. Illustrated. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1903.

This work contains more than five hundred pages, and as its title indicates is devoted to the subject of physiologic therapeutics. Like all of Dr. Cohen's writings, the mark of a master-hand is left behind. This work may be very justly termed an unique one in many respects. For instance, the third chapter is composed of the following subjects: Physical causes—mechanical, heat, cold, electricity, X-rays, Becquerles rays, sound, light;

atmosphere—composition, aqueous vapors, toxic gases, mine air, sewer air, atmospheric pressure, climate and season; toxic causes—local poisons, parenchyoma poisons, blood poisons, nerve poisons, food poisoning; sociologic causes—density of population, dissipation, occupation. In this one chapter will be found subjects which have not previously been considered in any other book from the standpoint they are here considered. The consideration of the effects of lightning, of the X-rays, Becquerles rays, the consideration of parasites of every variety, infected vegetables of every variety, parasitic evolutions, etc., are among the many subjects considered. It is illustrated sufficiently for all practical purposes. It is a valuable book and should be in the library of every doctor in the land.

Progressive Medicine. Volume I. 1903.

This volume of Progressive Medicine is devoted to surgery of the head, neck, and chest, infectious diseases, including acute rheumatism, croupous pneumonia, influenza, diseases of children, pathology, laryngology, rhinology, and otology. Like all of its predecessors, it is a most excellent book. Embolism of the pulmonary arteries receives important consideration, as the following will show: "Lotheissen has collected sixty-six cases of pulmonary embolism following injury or operative interference, including thirty-six fractures, with thirty deaths; six contusions, with five deaths; four tendon and muscle operations, all fatal, and twenty operations, with sixteen deaths. The mortality of the series is about eighty-five per cent. The symptoms pointing to venous thrombosis are often absent. The thrombi developed most frequently in the veins of the leg, in the region of the pelvis, and in the hemorrhoidal plexus. No doubt the predisposing causes of the thrombosis are slowing of the blood-current and certain changes in the endothelial coats of the vessel wall. When the embolus becomes lodged in the pulmonary vessel symptoms develop suddenly; at first pallor, then cyanosis of the face, a feeling of terror, dilation of the pupils, irregularity and embarrassment of the heart's action, constitute the symptoms complex. The Mahler pulse phenomenon is not always to be demonstrated."

THE AMERICAN PRACTITIONER AND NEWS

"NEC TENUI PENNÂ."

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H. A. COTTELL, M. D., M. F. COOMES, A. M., M. D., LL. D., Editors.

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JOHN P. MORTON & COMPANY, Louisville, Ky.

THE IMPORTANCE OF PURE MILK SUPPLY.

On a number of occasions we have called attention to the importance of a pure milk supply. No one who has given the subject serious consideration can for an instant doubt but that contaminated milk is one of the most dangerous things we have to contend with in infant feeding, to say nothing of the harm that results from its use by adults. A recent report of the Illinois State Board of Health gives some very remarkable figures concerning the decrease in the number of deaths in young children in Chicago within the last two years. The decrease in the death-rate among the infants amounted to nearly one half. Indeed, it seems almost incredible that the mortality among infants has been so reduced in this length of time, but the facts speak for themselves. The health board attributes the great decrease in the death-rate to the liberal use of antitoxin in treating diphtheria, and to the use of pure milk as food for young children. The use of pure milk is no doubt responsible for a great decrease in the death-rate. A war should be waged against the sale of impure milk in every city and town in this country.

Dr. M. K. Allen, the very efficient health officer of this city, has been making almost a single-handed fight against the venders of impure milk, and deserves the good wishes of the milk consumers of this city, and in fact of everybody else, for persisting in his efforts to obtain good milk. We trust this fight against the sale of impure milk

and impure foodstuffs in general will be continued. In this connection we wish to call the attention of the public to the sale of unripe and stale fruits. Every year at this season the country is flooded with green oranges. There is no fruit more disagreeable to the taste than an unripe orange, and if it is not possible to prevent growers from selling them, then the city health officer should take this matter up and punish every person vending such fruit.

THE OPENING OF THE WINTER MEDICAL SCHOOLS.

As all of the medical colleges in Louisville have fully conformed to the requirements of the State Board of Health, and as they all now have a uniform scale of fees from which there can be no variation, it will be a matter of great interest to the profession, and especially to the alumni of the respective schools, to note the conditions brought about by the new state of affairs. It is impossible to predict what the final result will be, but it is presumable that the school which is best equipped and most exacting in its rules and most practical in its methods will be the most successful.

Since the catalogue of the Louisville Medical College was issued and mailed, the Kentucky State Board of Health has adopted certain rules and regulations as to fees, etc., to which all medical schools must conform. In conformity to these regulations the fees of the Louisville Medical College will not be less than fifty-five dollars to any student for the session of 1903-1904.

C. W. Kelly, Dean L. M. C.

Special Notices.

So-Called "Christian Science."—While it is totally incomprehensible to the practical, hard-headed, common-sense individual that any one should pursue such an intangible chimera as "Christian Science" with such sublime faith as to depend upon it in the presence of serious bodily illness, certain it is that the disciples of this vicious religious monomania are increasing in number and temporal power, and that it is no longer safe to entirely ignore it as a menace to the health and well-being of the community. Both the medical and secular press have devoted considerable attention to the subject, largely in the way of ridicule, but the most powerful, logical, and altogether unanswerable argument we have yet seen is comprised in a series of short lectures by Rev. Andrew F. Underhill, of St. John's Episcopal Church, Yonkers, N. Y., entitled "Valid Objections to So-called Christian Science." Realizing that their interests are identical with those of the medical profession, and that the enemy of one is the enemy of both, The Arlington Chemical Company is anxious to do its part in relegating this absurb cult to the limbo of oblivion, where it may rest peacefully side by side with the many foolish fads that have preceded it.

Appreciating the force of the argument referred to, and being convinced that it will place in the hands of the physician a well-forged weapon wherewith to combat such a subtle and dangerous enemy, The Arlington Chemical Co. has obtained the permission of the author to reprint these lectures in booklet form and distribute them to physicians. If any of our readers have been overlooked in the mailing, a request to the above company will bring a copy.

Protected Ethpharmal Medicines.—I have no use whatever for any form of patented medicine. In the use of crude materials many vexatious things are encountered; if these can be eliminated much has been accomplished, and an excuse found for the use of protected ethpharmal medicines. So far as my experience goes it is a real advantage to the profession; it enables us to procure in a certain fixed form certain drug effects, and that is what we want. I think pharmacy has reached so high a standard by our best pharmaceutical chemists that the real drug effect is thoroughly brought out. I procured about a month ago an eight ounce vial of Sanmetto. I am perfectly familiar and for years have known the drugs and drug effects of the remedies said to be contained in Sanmetto. The announced composition, freely made known to the profession, has made amends for the name; protected or not as the case may chance to be. I use it for all kinds of irritaton of the urinary tract. The sample is exactly what we get in the eight ounce bottle in our drug houses in this place, and I know it, so am willing to order a full size bottle, eight ounces, or any other amount. L. G. Armstrong, M. D.

Boscobel, Wis.

Severe Reflex Pain.—J. H. Tilden, M. D., of Denver, in the June number of the *Chicago Medical Times*, in an article advocating the use of tampons in gynecological practice, reports, among others, a case which was characterized by severe reflex symptoms and which had not yielded to the treatment accorded by two other practitioners. Dr. Tilden's procedure was the introduction of a glycerine tampon and the administration of antikamnia in ten grain doses (two five-grain tablets) to relieve the pain. The tampon was removed each night at bedtime and followed with hot water injections. The patient, on being discharged, remarked that since following this treatment she could run the sewing machine without the usual pain and tired feeling.

THE

AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

MANAGEMENT OF THE THIRD STAGE OF LABOR AND THE PROPER CARE OF THE MOTHER AND BABY FOR THE NEXT FEW SUCCEEDING DAYS.*

BY HUGH D. RODMAN, M. D.

Labor, gentlemen, is ordinarily a physiological condition and should be so regarded and should be treated in a common-sense, practical way.

I have selected the third stage of labor as my subject because, as a rule, the first and second stages will manage themselves. We are just now at the bedside of a mother with a new born babe. So far all has gone well under our watching and waiting, but we must now be more watchful and more vigilant. Two lives are just now intrusted to our care, and upon the skill and attention which we now give to this woman will, in a great measure, depend the rapidity and completeness of her recovery and also her usefulness and her comfort in after-life.

At the birth of this baby's head I placed my left hand wide open, palm downwards, on the mother's belly just over the fundus uteri and kept up a gentle, firm pressure over the organ for about five minutes. After the baby is entirely into the world, I then instruct the patient or an assistant to place her hands just where I have mine. I now remove my hand, and if the pulsation has grown somewhat feeble in the cord, I ligate it about two or two and a half inches from the belly, then clip it smoothly off with my umbilical scissors and hand the baby to an assistant, who wraps it in warm flannel, even in hot weather.

*Read at the meeting of the Nelson County Medical Society, at Bardstown, September 9, 1903.

About seven or eight minutes has now elapsed since the birth. I now replace my left hand on the mother's belly as before, and if I find there a ball about the size of an ordinary baby's head and almost as firm, I take hold of the cord with my right hand and make a gentle traction on it, at the same time making a gentle pressure on the fundus uteri with my left hand.

In this manner in all ordinary cases the placenta is at once removed. But if gentle pulling on the cord fails to remove the placenta, I glide my hand gently up into the vagina, following the cord as a guide until I meet the placenta, which I grasp with my fingers and thumb and remove. I then reinsert my hand gently far up into the uterus and remove all clots and shreds of membranes that may have lodged anywhere in the uterus or vagina. I at once remove the placenta and blood-clots from the bed by scooping from my cushion everything in it into a proper receptacle on the floor. The mother is now clean, at least the uterus and vagina are. All of this time my left hand has been pressing gently over the fundus uteri. I now remove my left hand and direct the mother or an assistant to place her hand where I had mine and to hold firmly the ball which she feels there. I now oil a piece of gauze or clean cloth with vaseline, on to which I pour some spirits of camphor or dust some boracic acid and apply it closely to the external genitals, pressing it well between the labia.

About eight or ten minutes has elapsed since the birth, and the job is now complete and my patient is comfortable. I now give my attention to the baby, which by this time has been washed—yes, always washed (I permit of no greasing and dressing of new born babies) by an assistant under my direction in warm rain-water, if it can be had, into which an egg has been broken and thoroughly beaten with the hand; no soap is used; the egg removes the tenacious vernix caseosa much more thoroughly than soap and leaves the child's skin smoother and in a more healthy condition. It never irritates the eyes or any of the sensitive organs. I prepare my compress, dress the cord stump, and apply the binder myself. Do not trust this to an assistant. When the baby is well dried I dust it thoroughly with talcum powder or pure boracic acid. I now turn it over to an assistant to complete its toilet.

I now turn my attention again to the mother, to whom I have all this time been giving an occasional glance or a pertinent question.

If I find the uterus well contracted, I remove the abdominal pressure. I now remove my obstetrical cushion, with whatever discharge may be retained in it. The bed is now in a fairly clean condition. I now prepare a solution of bichloride of mercury of about one to two thousand or one to four thousand, and require an assistant to sponge the mother's genitals, including thighs, hips, and buttocks. I forgot to mention that I have already removed the gauze which I had before applied to her genitals; when this is done I remove the folded sheet or quilt, which was placed on the bed under the cushion. I replace this with a clean sheet folded four thicknesses, and I reapply a clean gauze or napkin (which has been prepared as the first one) to the labia.

The mother is now in a very good condition, uterus well contracted, and I apply the binder, giving this my personal attention. I now remove the mother's soiled clothing (if it is soiled); she is now in very good condition, everything about her clean. The baby by this time has been dressed and its head cleaned with a fine-tooth comb of all shreds and other matter which is difficult to remove by washing. From forty to fifty minutes have now elapsed since the baby's birth. I assist the mother to turn on her side, and have the baby applied to the breast, and an assistant to aid the mother in handling the baby and to see that it nurses. If the mother is now comfortable, or as much so as can be expected, I permit her to take any recumbent position that she desires. I enjoin quiet, and require the mother to rest, and direct that the baby be applied to breasts every four to six hours so as to remove fully any secretion which may be in the breasts, which usually affords the new-comer sufficient nourishment until lactation is fully established. I direct the mother that on the very first inclination to urinate, she, with the assistance of some one, slip gently off the bed on to a commode or a vessel which has been previously elevated ten or twelve inches from the floor, and empty her bladder. I also direct her to take a dose of salts, castor oil, or some other mild laxative at the end of thirty-six to forty hours from the baby's arrival. I advise the mother to sponge her nipples with a solution of boracic acid or alum. If this is a primapara case, I usually examine the nipples, and if if they have not been previously extended or stretched by manipulations, I advise that this be begun at once, so that the nipples will be well formed before lactation is fully established. This process will consist of bathing the nipples, after nursing, with a solution of alum,

and by gently drawing on the nipple with the finger and thumb at frequent intervals until the baby can get a good hold of them.

If this is not attended to, your patient is sure to have trouble. When the breast fills with milk there is no nipple and the baby can not nurse, because there is nothing for it to get hold of, and you have a full and aching breast, and no means of relief except the breast pump, which you will find your friend, both by relieving the tension in the breast and by, to some extent, extending the contracted nipple. I am now about ready to bid my patient good-by, when the important question comes from her: "Doctor, what must I eat?" To this I answer: "Anything in the world except cucumbers, boiled cabbage, or boiled beans and corn." And I mean that she can eat of almost any diet—she is not sick, and there is no reason why she should be confined to tea and toast. If my patient is not too far away, I make a point to see her during the first twenty-four hours after delivery, and again between the forty-eighth and fiftieth hours to see that all is going well and that lactation is established, that the kidneys, bowels, and bladder are all in normal condition, and also to give her important instruction as to the removal of the excess of milk which we are almost certain to have during the third, fourth, and fifth days after delivery. After-pains should not be permitted to annoy the patient too severely.

I learn from close observation that it is not necessary to let a woman suffer intensely for three or four days with after-pains; she gets on better to have these pains relieved. When very annoying, and when severe enough to prevent sleep, I give a tablet of antikamnia and codeine as often as necessary to keep them reasonably controlled. I find one, two, or three such doses given during the thirty-six or forty-eight hours when these pains are most severe to be sufficient for any case.

Delivery of the Placenta. I said in the beginning of this paper that labor is ordinarily a physiological condition, and I believe (and I act on this belief) that this physiological law should be carried out and aided by us in all of our conduct and in all of our treatment of this stage of labor. For this reason I digress from the line marked out by nearly all writers and speakers on this subject, by delivering the placenta early, very soon after the delivery of the child. As soon as the cord is cut the placenta becomes a pathological factor and should be removed speedily, as we would remove any other foreign body. There are many reasons why this should be done, and

as I see the condition of things there is no reason to wait for hours for nature to do what we can help her accomplish in one minute. First of these reasons is: That the uterus can not fully contract with a placenta lodged in whole or in part in its cavity. This contraction we claim we desire and wish to aid; if so, remove the obstruction and permit that condition which we desire to take place. If we do not, and wait for hours for nature to do the work herself, we have favored a kind of chronic distension to take place which is followed by a subinvolution, which is, to say the least, very annoying. We also favor a species of decomposition and sepsis to set in, the result of which you all know.

Another reason for a quick delivery of the placenta is: That your patient is always, so long as the placenta remains *in utero*, in an uneasy state of both body and mind, which is made manifest by her constant or frequent questions: "Doctor, what is the matter? Something is wrong with me." "Why don't the after-birth come?" "Is it grown to my side?" "Will you have to introduce your hand and tear it out?" And a number of other such questions and exclamations. This mental worry is conducive of serious conditions. It promotes hemorrhage and favors subinvolution, retards recovery, promotes unrest, and does great harm. I have not quoted authors, for the reason that I began this paper and selected this subject to write for your consideration my own views in an original way, without annoying you with the views of authors, which I presume are familiar to you all. It has been my intention to give you what I believe, after close observation for thirty years, to be the best mode of managing this period of a mother's career, and to give the reasons for the faith that is in me. I earnestly solicit your criticisms, whether they be severe or mild, provided always that you give a reason of your own and not the opinion of another. When at the bedside, I do not believe I ought to do what some one else says that he has done, just because he did it, but I believe I ought to do what I believe to be the best for my patient now, and that which will conduce mostly to her health, happiness, and usefulness in the years to come.

BARDSTOWN, KY.

SURGICAL ASPECTS OF TYPHOID FEVER.*

BY A. D. WILLMOTH, M. D.

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The province of the physician and that of the surgeon is generally sufficiently defined, and yet they have many points of contact. While some diseases belong exclusively to the province of the one and some to that of the other, some diseases may fall with equal propriety under the care of either. Still another class of cases, however, beginning in the domain of medicine, may terminate in that of surgery, and we may lack their complete history from the very fact of this division of their care.

Among the diseases classed as strictly medical, none deserve the appellation more definitely than the continued fevers, and especially typhoid fever, yet our present knowledge shows that these fevers are not infrequently the cause of the gravest and least expected surgical troubles, mention of which is generally omitted even in our best text-books on medicine, still more rarely noticed in works on surgery, and where noticed, it is only with the greatest brevity.

Since 1880, when Eberth discovered the bacillus of typhoid fever, our views of the pathology not only of the fever itself, but also of its complications and sequels, recent and remote, have undergone an entire revolution, and we now understand much that was formerly inexplicable.

I shall only consider the pathology of typhoid sufficiently for us to see its bearing from the surgical side. In order to gain a clear idea of the pathology of typhoid and post-typhoid lesions, I will consider: (1) The viability of the typhoid bacilli both in and out of the body; and, therefore, the possibility of their causing late as well as early sequels of the fever. (2) Their wide diffusion in the various organs of the human body, and therefore the possibility, if not the probability, that all the various surgical results may be caused by them. (3) Mixed infections of the typhoid bacilli with other bacteria. (4) The pyogenic faculty of the typhoid bacilli. (5) Typhoid infection of different organs without typical typhoid lesions in the intestine.

In considering the first two of these we find that the bacillus may, and actually does, live outside the body not only for a few weeks or months, but has been found by some as late as two years after inoculation on threads, as was done by Schriller, and when we come to consider

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the length of time they may live in the body we find numbers of cases on record where abscesses formed five and six months after the fever, and when opened a pure culture of the typhoid bacillus was found, and we have the remarkable case of Von Dungern, where after fourteen and a half years an abscess formed in the region of the gall-bladder, and when opened a pure culture was obtained and the blood serum gave the Widal reaction.

The next thing that interests us is the wide diffusion of the typhoid bacillus in various organs and tissues of the body; scarcely a tissue or organ of the body escapes invasion by the typhoid bacillus. Not only the normal tissues are invaded, but the pus in abscesses in every region of the body, in the effusion of teno-synovitis, in the non-purulent fluid of orchitis, etc. This being the case, we can readily understand how the bones, joints, glands, etc., easily become involved when we think how easy it is for mixed infection to take place, and not only this, but the possibility of the typhoid bacillus having pyogenic properties of its own under certain conditions which as yet we are not able to explain. The above remarks give us a faint understanding of how the surgical features in these cases are brought about. The first and most important of all, and its frequent occurrence, demands that we all give it most careful attention.

Intestinal Perforation.—The frequent occurrence of perforation of the bowel in typhoid fever has long been recognized, but not until Leyden, in 1884, proposed to treat the peritonitis surgically, and believed that it offered a fruitful field, did surgeons begin to consider the possibility of its success. In 1886 Wilson, an Englishman, suggested that the perforations should be treated by operative procedures. The frequency of this condition is variously estimated. The 4,680 cases tabulated by Fitz may be accepted as being as nearly correct as is possible. He found that the mortality was about 6.58 per cent, and in this same table he found that the perforation in 444 cases occurred in men in 71 per cent, while its per cent in women was only 29 per cent. This difference we are not able to explain. We also find that age plays an important part in its occurrence, the old and the very young being less liable to suffer, the most favorable age being in young adults, for in those from twenty to thirty years we find the condition existing in 39.8 per cent. The next most common period is ten to twenty years, where the per cent is 23.8. Time is also an element. In the third week, when the ulceration is most extensive, 24.8 per cent of the cases of perforation take

place, some occurring as early as the second week, others as late as the sixth week. Upon the early diagnosis of perforation depends our success in treatment. In eighty cases reported by Fitz the onset was sudden in fifty-six, while in fifteen the symptoms were gradual or latent, and in five there were no symptoms whatever pointing to perforation. This being the case, we can easily see that patients may have no symptoms of perforation, yet may die as the result of one or more, while on the other hand patients may have all the symptoms of perforation, and after death from peritonitis, due to accumulation of scybala in the bowel or some other less common cause, the post-mortem reveals no perforation at all; however, it can not be disputed that some few cases do recover after perforation without operation, the mortality without operation being about 98.3.

The ordinary symptoms which indicate perforation are especially sudden or severe abdominal pain, usually in the neighborhood of the right iliac fossa or the hypogastrium, collapse, nausea and vomiting, with occasionally a marked fall of temperature. It would be supposed that in consequence of perforation the intestinal gases would escape, and this would be followed by disappearance of the hepatic dullness; but this is only rarely reported. Another very important symptom which has been observed only of late is the presence or absence of leucocytosis. According to Thayer there is no increase in the proportion of the white blood corpuscles during the fever, but rather a slight diminution in their number, which gradually diminishes until convalescence. Cabot denies this fact, for in four cases the leucocytes were markedly increased; but the question of leucocytosis, if studied carefully, will aid us a great deal.

Another symptom which has been observed, but of which there is practically no mention, is stenosis of the bowel, which is often complete, this being brought about by the destruction of one or many of the mesenteric arteries.

These rather uncertain symptoms, coupled with the serious condition of the patient, makes anything but a glowing picture for the surgeon; but granting that the chances of a successful issue are heavily against you, that the patient is in the midst or at the end of a long sickness, that the tissues are in the worst state to stand the injuries of the knife, that the lesions in the gut may be very extensive, and that the vital forces are at the lowest ebb, yet no one should hesitate to give a patient the last chance for his life—an operation, which offers the best and only chance for recovery.

If the patient is in a state of shock he should not be disturbed for say twelve or more hours. In fact, it is the experience of Keen, who has done more work along this line than most any one else, that the second twelve hours is the time to operate, and gives the per cent as 30 against 26.7 per cent where the work was done in the first twelve hours. However, I believe that the above statistics were obtained with the patients under general anesthesia, and at the present time these may be modified by doing the work under a local anesthetic and saving the shock of general anesthesia.

When we have made up our mind to operate, the incision should be made in the median line, below the umbilicus, and an immediate search made for the perforation in the gut. We can hasten our work by remembering that the perforation will be in the ileum in 81.4 per cent of all cases, and in the large intestine in about 12.9 per cent. If it is not easily found we can flush the cavity with salt solution, which will remove the fecal matter and pus from the bowel and cause the hole to show. After it is found it should be closed by small silk sutures after the Czerny-Lembert method, or by the independent mattress suture as advised by Halsted, which is perhaps better, though slower to introduce. When put in, one knot ties two sutures, and if one gives way it does not weaken the entire line. How far the search should go must be determined by each case. The appendix should at least be inspected in every case, for typhoid ulcers are not at all uncommon at this site.

In extreme cases resection of the gut may be demanded, but whether this is done or not, the sutured places in the bowel should be brought up where you can see them in the cavity, and they should be walled off with gauze and a drain be obtained through the incision.

Typhoid Affections of the Bones.—Next to the laryngeal troubles in frequency, and next to perforations in consideration, we find that any of the bones may be involved, but it is most often the long bones, and the tibia in particular; the bones of the lower extremities as a whole suffer more often than the upper. This is, perhaps, due to the fact that the blood-stream is slower there than in the upper extremities, giving the germs a chance to lodge and find attachment. This usually takes place late in the disease, or more often follows the attack, and is marked by very few pronounced symptoms.

The fever especially is most commonly absent; in fact, so pronounced has this been in the typical typhoid cases, as distinguished from those arising from a pyogenic or a mixed infection, that Widal and others have

called it, when occurring in abscess, "cold abscesses," though it resembles in no way the tubercular condition commonly described by this name.

The cases may be classed as acute or chronic. Even in the acute cases, fever anorexia, dry tongue, and constipation may be absent, the local symptoms predominating. Occasionally, however, moderate constitutional symptoms may be noticed. Usually the first symptoms will be local pain, tenderness, and swelling, the latter being much more extensive than the bone disease which is its cause.

In some cases, after a few days resolution may take place, while in other cases, after an apparent subsidence of the disease, and even after weeks and sometimes months of supposed health, the pain and swelling will re-appear at the same spot and then go on to the formation of an abscess. Fortunately surgical treatment in most cases is not needed during the typhoid attack, but after return to health. When fluctuation is present the abscess should be immediately opened, or even opened before this unless we are fairly certain that resolution will take place. The conditions found, whether abscess or not, should be thoroughly opened up and treated on general surgical principles.

Typhoid Affections of the Joints.—This consists of arthritis, which may be of either poly or mono-articular variety, the last-named affecting the hip in particular. Pain is usually slight, though sometimes severe and prolonged. The swelling is easily observed, as a rule, except when it occurs at the hip or shoulder joints, where it is obscured by the muscular masses about these joints. Pus rarely forms, and hence suppurative or fistulous openings are rare, and the result is usually a gradual return to usefulness, although more than one half of the cases of typhoid arthritis are followed by spontaneous dislocation when of the hip joint. The symptoms are usually easy to see, and the treatment can be applied early.

If in a person under twenty suffering from typhoid conditions the patient begins to complain of pain in the hip joint, our attention would at once be directed to the prevention of the destructive process that is taking place, and, at the same time, to keep the joint in position. This is best obtained by the application of sand-bags and the fixed dressings that are at our disposal. If the joint suppurates it must be freely incised and drained.

Typhoid Affections of the Gall-bladder.—The relative frequency of typhoid affections in and around the gall-bladder stand out in striking contrast to the rarity of surgical complications in the liver. This is

easily explained by the fact that the bacilli are found in the blood itself, and, in addition to this, the bile ducts are in direct connection with the lumen of the gut, which we all know is lined by the germs, and their passage through it is easy to account for.

The effect of the infection of the gall-bladder is to produce a cholecystitis which may end in perforation, which, however, is a much more favorable condition to deal with than that of the intestine. The condition here differs in nowise from the condition from other infections, and it is to be dealt with on general surgical principles.

Typhoid Gangrene.—I would not do myself justice if I failed to speak of this all-important subject. It may mean anything from the simple bedsore that we all see to the most extensive gangrene of one or both extremities. It is found that it follows not only the severe cases, but many mild cases are complicated by it, so the practitioner has to be on the alert in every case. Gangrene is, as a rule, a late complication or an early sequel. It is never a late sequel like bone lesions; the earliest time it was found to occur was on the fourteenth day, and the latest was in the seventh week. The causes for the appearance of gangrene in the second or third week, or late rather than early in the disease, are probably twofold.

First, during the earlier stages of the diseases the general vitality of the patient and resistance of the tissues are such that they can combat successfully the evil tendencies of the fever; but, secondly and chiefly, just as for the production of the intestinal lesions, so for the gangrene, a certain length of time is required for the diffusion of the bacilli and their toxic products to unite in working together and to the same end. By the second or third week the bacilli and their toxic products have become diffused through the system; excessive feebleness has followed the small amount of food taken and the exhaustion from the continued high temperature; the heart has become weakened, which favors the formation of thrombi, which may exist and co-exist in four varieties: (1) Arterial emboli of cardiac origin; (2) autochthonous thrombi in the arteries; (3) autochthonous thrombi in the veins; (4) which is probable, thrombi in the peripheral vessels. The symptoms of gangrene are marked and characteristic. It begins with a sense of numbness, coldness, loss of sensation, and sometimes of motion, followed by discoloration and all the usual signs. These may all precede the pain. It is of the dry variety unless large clots form higher up; then the moist may supervene. Nature usually makes a great effort to form a line of demarcation, and

succeeds if the patient survives long enough. The treatment is the same as for gangrene from any other cause.

The next thing I will call your attention to is the occurrence of abscesses over the body, which is due most often to the *locus minoris resistentiæ* being lessened by the fever and an infection antrum taking place; the ordinary pyogenic bacteria are the ones usually found. There is no question but that the typhoid bacillus may cause at least some of the abcesses that are found in the cavities and other deep sites. Though the patient may be at a low ebb, there is no excuse for allowing these processes to continue, and they should be opened and treated as any other abscess, for by so doing you stop the absorption of poisonous material into the system of one who is already laboring under all the weight he can carry.

LOUISVILLE.

MEDICINE AND SURGERY IN THE PHILIPPINES.*

BY WATER D. WEBB, M. D.

Assistant Surgeon, U. S. A.

I have been requested to talk to-night about the diseases of the Philippine Islands and of some of the gunshot wounds which came under my observation during my two years and a half tour of duty in the Archipelago.

My personal experiences would be of little interest to any one but myself, so I will try to confine my remarks to subjects of some general professional interest, and in order not to take up too much time I will only speak of some of the more interesting phases of the most conspicuous diseases met with.

I arrived in the Philippines in the latter part of the year 1899, and the regiment I was with was sent almost immediately to the island of Samar, as part of General Kobbe's expedition, which was the first expedition of Americans to Samar and Leytie. We landed at Catbalogan, the capital of Samar and the headquarters of the insurgent government. Here we met with considerable resistance, and in the affair which took place we had several killed and a number wounded. In addition to our own injured we had a lot of injured native prisoners to

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be cared for, and this occurred throughout my experience, the prisoner patients greatly outnumbering the soldier patients. From this time on I had plenty of interesting surgical work. One of the best houses left in the town was assigned as a hospital, and I fitted it up with the excellent equipment we had been provided with for that purpose. Here I received all the wounded which were able to be transported from all over the island.

The hospital was a nine-room frame house with corrugated iron roof and hardwood floors. Two large rooms were used as wards, the two containing twenty-five beds. The others were used as dispensary, operating-room, dressing-room, kitchen, dining-room, etc. I had one hospital steward and seven hospital corps men to act as nurses, orderlies, litter-bearers, etc. At first I was the only surgeon present, but later, as the work increased, I was sent an assistant, Contract Sugeon Frederick D. Branch, of Albany, N. Y., who proved himself a very valuable man.

We were well equipped with all the instruments required for general surgical work, dressings in great abundance, a large Arnold sterilizer, suture materials sterilized and contained in hermetically sealed tubes and also in bulk, antiseptics, and all the drugs used in ordinary medical and surgical practice in liberal amounts. We even had a microscope, with the accessories necessary to examine fresh and stained specimens. The Government was very liberal in providing us with everything needed. All that was required was a little foresight to get a proper requsition in and receive your goods before the want of them became urgent. Many volunteer surgeons lacked this foresight, and later blamed the army for what was really their own fault.

The larger number of gunshot wounds which came under my observation and care occurred in natives, and were made by the small-bore, high-velocity bullets from our own army rifle, the Krag-Jorgensen, which has a caliber of 30 mm. diameter. The many wounds which I had to treat among our own men were made with a great variety of weapons, bullets of nearly all calibers, bolos, and spears. The Mauser and Remington were the guns that the greatest number of insurgents who had guns at all were armed with, but among their ranks could be found a great variety of small arms, shotguns, and rifles.

The Mauser is approximately the same caliber as our rifle, and like the Krag the bullet is encased in a nickel-steel jacket. The Remington carries a large lead bullet encased in a brass jacket, which usually

goes to pieces on contact even with soft tissue. Before going to the Philippines I read all the theories I could find accounting for the character of wounds made by the small-bore, high-velocity bullets at a given range. I soon found I could not tell the range by the character of the wound nor foretell the character of the wound which would occur at a given range. There are so many influencing factors involved, size of projectile, velocity, tissue involved, angle at which it impinges, and probably many others, that with our present knowledge I do not believe we can accurately predict that at a given range we will have an explosive effect with the production of a definite kind of wound and at another given range a penetrative effect with its definite wound. However, as a rule, at all ranges wounds involving the cranium or compact cancellous tissues were accompanied by extensive comminution, and wounds involving the soft tissues were almost always perforating in character, with very small wounds of entrance and exit.

This was the rule at all ranges, but exceptions for which I could not account were not uncommon. I saw a number of accidental wounds of the hands and feet where the muzzle of the gun was either in contact or within a few inches of the injured member, and in these cases a small perforating wound was the usual result unless the metacarpal or metatarsal bones were involved, and then there was usually extensive comminution, with forcing of the fragments outward and making a large wound of exit. Also a number of wounds made at ten to twenty yards in native prisoners, shot while attempting to escape, failed to show the explosive effect described for this range unless the cranium was involved. Again, I saw a number of wounds made at one thousand yards or more, which also failed to show the characteristic wounds described for that range. Three natives, who were shot at a distance of fourteen hundred yards, sustained perforating wounds, with small wounds of entrance and exit, two through the chest and the third through the thigh.

Wounds of the head, as I have said, were accompanied by extensive comminution, especially at the wound of exit, and the mortality was very high as compared with the wounds made by the old bullets. Most that I saw resulted in immediate death, and the explosive effect was well demonstrated at all ranges. A Chinaman shot at fifteen yards with a Mauser recovered from a wound of the cranium, with the loss of a considerable portion of the right side of the vertical position of the frontal bone.

Wounds of the thorax were in practically all cases perforating, with small wounds of entrance and exit. An uneventful recovery, with few symptoms other than the expectoration of a small amount of blood, was the rule unless a large vessel was involved, in which case death occurred from hemorrhage, usually on the field. When the wound of exit was large, which sometimes occurred from the bullet striking a rib, there was a collapse of the lung and the formation of a hemo-pneumothorax.

Several wounds of the chest were of special interest, illustrating the difference between the modern small caliber jacketed bullet and the large soft lead bullet.

Private C., of the Forty-third Volunteer Infantry, was shot at about seventy-five yards with a Mauser. The wound of entrance was very small, about the size of the diameter of the projectile, which is 29 mm. It was situated in the eighth interspace in the midaxillary line of left side. The wound of exit was about three times as large as that of entrance, caused by the bullet striking the seventh rib, one inch post to post axillary line, on the right side. The right lung was collapsed and the pleural cavity contained a large amount of blood. It was a marvel to me how the bullet could pass through both lungs from side to side along the tract followed in this case without hitting some large vessel or vital structure. In addition to the gunshot wound of the chest this soldier sustained fourteen bolo wounds, and yet he made a recovery.

Wounds of the abdomen were highly fatal, and I believe in operating at once when there are perforating wounds of one of the hollow viscera, even with the most meager outfit. I do not believe we are justified in allowing the case to go without an attempt to close the wounds in the stomach or intestines.

I had a large number of compound comminuted gunshot fractures of the long bones to treat. If the blood-supply of the extremity distal to the wound was good I tried to save the arm or leg, even though the comminution was extensive. I removed the detached bone and left those large fragments which had periosteal attachments above and below. These I tried to mold into position and then applied some form of immobilizing dressing.

The first case I treated in this way was an extensively comminuted fracture of the upper third of the thigh, made by an old-fashioned brass jacketed Remington ball, fired at long range. It occurred in an adjoining town and I was sent for to amputate the extremity, but on finding

that the blood-supply was unimpaired by comminution, I decided with many misgivings to try to save the limb. I was influenced in coming to this decision by the fact that the fracture was so high that a disarticulation through the hip-joint would have been necessary. As I had never done this operation at that time, besides having very poor facilities and meager assistance at the small town, I was not at all anxious to attempt it. I enlarged the wound of entrance, removed the lodged ball and loose fragments, many of which were very large, molded the fragments with periosteal attachments into place, made a posterior drainage, and immobilized the extremity. The result was a good, useful limb, but with considerable shortening.

After this first case I saved a number of arms and legs where extensive comminution with loss of bone had occurred, which I believe I would have amputated had I not seen this result.

I only amputated three lower extremities for gunshot wounds. In two the circulation was so destroyed that gangrene of the foot followed, and in the third the shattering of the lower extremity of the femur was so extensive that an amputation was indicated beyond a question.

Had I to go over the experience again I think I would amputate a little more frequently, as I have thought since that some of the extremities saved were not of enough value to warrant the long, tedious treatment. In gunshot wounds of the knee-joint the lives of two soldiers could have been saved by early amputation. Three men were brought on the same day to the hospital with gunshot wounds involving the knee joint. One, Private F., of the Forty-third Volunteer Infantry, was shot with a Mauser, and the other two, Private C., of the Twenty-third Infantry, and Private M., Forty-third Infantry, with large soft bullets. Private F.'s wound was perforating, with small wounds of entrance and exit, the bullet passing through the head of the tibia, then through the joint, and made its exit just internal to inner margin of patella. With an aseptic dressing and immobilizing with plaster bandage the patient made an uneventful recovery and returned to duty, with no impairment of the functions of the joint. The other two had large wounds of entrance and exit, and were infected on coming into my hands. One of the bones entering into the formation of the joint was in each case comminuted. I opened the joints thoroughly, removed bone fragments, established drainage with a number of rubber tubes, and irrigated the joints twice daily with normal salt solution. Private M. did well shortly

after cleaning the joint out, and in a short time I had him up in a wheel-chair with a normal temperature. Private C. ran an irregular temperature for several weeks, and several pockets had to be opened in the thigh, but finally his temperature became nearly normal and he improved greatly in general condition.

At this stage I was relieved by a volunteer surgeon and I turned the two cases over to him. Later I heard that he had amputated in both cases. Private M. died on the table and Private C. died shortly after the operation. Although I feel confident that the lives of these two men could have been saved by proper attention to dressings and without amputation, I decided that unless I could see the case through to the finish, or knew who I was turning the case over to, I would amputate early in infected wounds of the knee-joints.

I can not speak in too high terms of the value of the first aid package. Many instances came under my notice in the Philippines where the application by a soldier of the dressing was the means of saving the wound from infection, and in this way undoubtedly saving life. All armies to-day provide every officer and enlisted man with a first aid package. Ours consists of a piece of gauze, a triangular bandage, and a large safety-pin, all sterilized and wrapped first in oiled paper, then in rubber cloth, and sealed at the ends. All soldiers are instructed in the use of the dressing, and instructions are printed on the outside. Recruits will throw away their package or use them for sore feet or to clean their guns, but not so the man who has had some active campaigning; he has learned the value of the package, and will wear it strapped to his cartridge belt until everything else is gone. We found a limited number of first aid packages, made in Germany, in use among the insurgents in Samar.

After fourteen months in the southern islands I was ordered to Manila and assigned to one of the general hospitals. There were four hospitals in the city at this time, the First, Second, and Third Reserve Hospitals, and Santa Mesa, but shortly after my arrival the Second Reserve was discontinued and Santa Mesa only took venereal and tubercular cases.

These hospitals were very well equipped; the Government gave us everything asked for in the way of surgical and medical equipment. The operating-room was excellent at the First Reserve, and would compare favorably with those in the large modern hospitals in the cities

of the United States. Nurses were in abundance, but all the Manila hospitals were under-equipped with medical officers.

For one year I did the operating at the Third Reserve Hospital and then at my own request was put in charge of the Army Pathological Laboratory, where I remained until my tour expired. The surgical work in Manila was of quite a different character to that in the provinces. It consisted largely of the remote effect of gunshot wounds, besides the general surgery similar to that seen in any hospital, hernia and appendicitis, both of which are so common among young men. Appendicitis especially so in the tropics, where there is so much intestinal disease.

The aseptic results in the Manila hospitals were very good. I had less than 1 per cent of infections in wounds intentionally made. I saw personally to the sterilization of all dressings, gowns, etc., and prepared my suture material, with the exception of the use of some of the hermetically sealed tubes prepared by St. John Levens.

We wore rubber gloves and gauze caps to prevent the falling of hair and dandruff, besides, in very hot weather, a gauze sling under the chin to prevent the falling of sweat on the field of operation. The same germs which cause wound infections in the States occur in the Philippine Islands, under the same conditions and with about the same degree of frequency. Tetanus is quite common among the natives, who neglect small wounds of the hands and feet; and tetanus neonatorum is a common cause of mortality among the native infants.

Of all the diseases which attack our army in the Philippines the intestinal are by far the most serious. Of these dysentery stands first, both in point of causing mortality among and in invaliding the soldiers. About 15 per cent of all admissions to the Manila hospitals was for dysentery. The varieties seen are acute and chronic amebic dysentery, acute and chronic specific dysentery, and acute and chronic colitis from other causes.

The amebic dysentery is more frequently slow in its onset and runs a chronic course. This, however, is not the invariable rule by any means, as we see many cases with a sudden onset, terminating fatally or in recovery in a short time, or going on to a chronic course. The differential diagnosis between the two varieties of dysentery was made by the microscope, the amebic being very easily demonstrated by examining a smear from the fresh stool. The specific dysentery gave the serum reaction with the Shiga bacillus, usually after the fifth or sixth

day. The technique was similar to that used in the Widal reaction and the dilution used most frequently was 1 to 40. There are undoubtedly a number of varieties of amebæ in the Philippines, not all of which are pathogenic. They can be found in the stools of soldiers in perfect health. There is a great deal of work yet to be done with the amebæ. Those seen engulfing red blood cells were generally considered to be pathogenic.

The pathology of the two varieties of dysenteries differs markedly. In the amebic cases there is situated in the colon, with maximum intensity either in the sigmoid or cecum, deep ulcers with undermined, overhanging edges. The mucosa and sub-mucosa are greatly thickened and two of the ulcers will frequently communicate by tortuous tracks under the mucosa. In the autopsies I did and saw the maximum intensity was oftenest in the cecum, and in a number of cases the ulcers extended some distance up the ileum. The picture in specific dysentery was quite different. The colon is intensely congested, injected, and ecchymotic, and covered with superficial erosions; the mucosa is not markedly thickened.

The treatment of dysentery was very unsatisfactory. That which I found most successful was absolute rest in bed during the acute stages, withdrawal of all food for the first twelve to twenty-four hours, and a free evacuation of the bowels with magnesium sulphate frequently repeated. If begun early this cut many of the cases short and brought about a prompt recovery. The use of opium, bismuth, and other drugs which prevent free evacuation of the bowels was avoided, both in the acute and chronic stages, as I believe that free drainage from the ulcerating surfaces is of the greatest importance. All drugs by the mouth were unsatisfactory, with the exception of magnesium sulphate. The ipecac treatment was not what we had hoped for it, yet I saw some real benefit from its use in some cases when vigorously carried out.

Local treatment by high irrigations with quinine 1-5000 and stronger. Tannin .5 per cent solutions, nitrate of silver in weak solutions, and so on through the great list which has been recommended was carried out very extensively and conscientiously, especially the irrigation with solutions of quinine. I finally gave them all up for the normal salt solution, as I came to believe that the very real benefit derived from irrigation of the large bowel was due more to the removal of the discharges and ridding the bowel of the foul fermenting toxin-laden contents than to any specific action or power to destroy the organism of

the solutions used. When preparations of opium were used it was usually to control pain or aid in retaining large doses of ipecac. In both cases I used morphine hypodermatically. The serum treatment of specific dysentery was not tried.

The complication of amebic dysentery most frequently seen was abscess of the liver. In about 20 per cent of all cases dying with dysentery liver abscesses existed. In twenty-three autopsies which I did in cases dying with dysentery there were eleven liver abscesses. Of these, seven were multiple and four were single. The diagnosis in the early stages is very difficult, as they do not usually present the picture described in the text-books until they have existed for some time and are very extensive, or are associated with one of the pyogenic organisms. I believe that they are single in the early stages and later become multiple, but unfortunately when we see them they are more frequently multiple. I had two cases at the same time which illustrate very well the very different clinical picture which cases of liver abscess, both of which contained the ameba dysenteriæ, can present. Private T., of the Signal Corps, was brought in on a stretcher extremely emaciated, with an irregular septic temperature accompanied by profuse sweating. Leucocytes 38,000 per cu. mm. Two large abscesses were opened and the patient lived two weeks. On autopsy multiple abscesses were found throughout both lobes.

The second case, which was admitted at the same time, Corporal H. G., Company M, of the Twenty-third Infantry, walked into the hospital weighing 156 pounds, which was within a few pounds of his normal weight. His cheeks were florid and he looked in almost perfect health; his temperature was only slightly above normal. Leucocytes were normal. He had a history of having had dysentery one year previous, but had none on admission. On examination, he was found to have a large swelling in the epigastrium slightly to the right of the median line, which, according to his statement, had been present for several months. This turned out to be a large liver abscess, from which I evacuated 1600 cc. of characteristic pus, containing many active amebæ. The patient made a rapid recovery and returned to duty. Had the swelling not been present I do not think any one would have suspected his having a liver abscess. Leucocytoses in the cases of amebic liver abscess which I saw was not a very valuable symptom, and I doubt if it is present without a mixed infection.

The ameba were sometimes difficult to find on first opening the abscess, but later, when the walls began to slough, they appeared in the

discharge. In two cases which I saw, the abscess had ruptured into the bronchi and the amebæ appeared in the sputum.

Next to dysentery the intestinal parasites are the most serious of the diseases with which we have to deal. They do not directly cause many deaths, but as they so frequently complicate the more fatal diseases they are a potent contributing cause of mortality. Aside from this, they are probably one of the most frequent causes of invaliding the soldiers to the United States and resulting in a great loss to the Government.

The following result of stool examination, made during one month at the Army Pathological Laboratory, will show the frequency of the various parasites, and also the great value of the microscope in tropical medicine:

Stools examined,	268
Ameba dysenteriæ,	47
Ova ankylostoma duodenale,	28
Embryo ankylostoma duodenale,	28
Embryo strongloides intestinale,	2
Ova ascaris lumbricoides,	19
Ova tricocephalus dispar,	25
Balantidium coli,	1
Tricomonas intestinale,	36
Circomonas intestinale,	6

The ankylostoma duodenale it will be seen is one of the most frequent and is also the most serious of the parasites to the American. These cases were admitted to the hospital with the greatest variety of diagnoses, the most frequent among which were anemia, nephritis, and endocarditis. Most of the cases of so-called tropical anemia are cases of ankylostoma. The symptoms of an advanced case are marked anemia; red blood cells often reduced to 100,000 or less per cu. mm.; hemoglobin often to 20 per cent, and anemic cardiac murmur, edema of the lower extremities, and a muddy yellow complexion. Constipation is more frequent than diarrhea in uncomplicated cases. The ova can be readily found in the stool. The treatment was, unlike that of dysentery, very satisfactory. Large doses of thymol effects a speedy cure, although it may have to be repeated a number of times to rid the patient finally of the parasite.

A number of different intestinal parasites are often associated in the same case. Private C. R. was admitted to the hospital with acute dysentery and with a history of long-continued diarrhea. His stools, on examination in the laboratory, were found to contain amebæ dysenteriæ, ova of ankylostoma duodenale, and ova tricocephalus dispar, and in addition to this he vomited two adult worms, ascaris lumbricoides, while

under treatment. He entered hospital September 3d and was returned to duty cured September 18th. Except for his prompt recovery this is not a very unusual case.

Many cases were treated in the hospital with the diagnosis of sprue. This is a condition following dysentery, chronic diarrhea, or infection with one or more of the intestinal parasites, which results in a general atrophic condition of the mucous membrane and glandular structures of the entire alimentary canal from the mouth to the anus. The mouth is sore, the mucous membrane glazed, and often covered with small ulcers. The stools are large, frothy, fermenting masses. The advanced cases are extremely emaciated; they run a subnormal temperature and present very much the same picture as does a marasmic child which is dying from starvation from lack of assimilation. The only treatment which seems to be of any great benefit is a transfer to a colder climate.

Malaria is very prevalent in the Philippines. The benign tertian and the estivo-autumnal parasites are both common; the quartian parasite is rare. The disease responds very readily to quinine and differs in no way from that seen in the southern part of the United States. I usually employed quinine in solution with aromatic sulphuric acid and gave it in moderate doses, from five to ten grains three times a day, except in very urgent cases and when it could not be retained by the stomach. In these cases I gave the hydrochlorate hypodermatically in doses of from two to three grains. Recurrences were very frequent unless the treatment was kept up for a month or two after disappearance of all symptoms.

The two cases of hemoglobinuric or black-water fever I saw were very different from the symptomatic hematuria or hemoglobinuria which I saw so frequently in cases of malaria. They both terminated fatally within forty-eight hours, one with convulsions and complete suppression of urine, and the other with almost complete suppression. The urine passed was black, and on examination this was found to be due to free hemoglobin. Both patients became deeply jaundiced shortly before death. The malarial parasite could not be demonstrated in either the peripheral or splenic blood, in the marrow of the long bones, or in sections from the spleen. The spleen was very slightly if at all enlarged. The kidneys were intensely congested, with hemorrhagic spots under the capsule and scattered through the cortex. The case with complete suppression was given large doses of quinine hypodermatically, while the other case received no quinine at all. Only the first case gave a malarial history.

Typhoid fever is not at all common, and when I left the islands it seemed to be growing less so than during the early days of occupation. Not a single case occurred among the troops I served with in Samar and Leyte during the fourteen months I was with them, and this seemed remarkable to me after our experience with typhoid in 1898 in the South and in the West Indies. There are very few flies in the Philippines as compared with the United States and the West Indies, and I have thought this the possible explanation of the fact that typhoid does not spread in the Philippines, where all other conditions are apparently so favorable.

I expected to encounter a number of tropical fevers of undetermined type, and undoubtedly such fevers do exist, but it was very rare to meet with a case which could not be diagnosticated as one of our described diseases by clinical, laboratory, or post-mortem methods.

Malta fever, although not one of the prominent diseases of the Philippines, is by no means rare. I saw several cases, in all of which the diagnoses was confirmed by the serum reaction.

Dengue is one of the commonest diseases in the islands. Few Americans who spend any length of time there escape it. It is not at all dangerous, but as I know from personal experience, it is not at all pleasant. Its principal points of interest to me were its obscure etiology and the great variety of eruptions seen in different cases. Macular, papular, sometimes vesicular, and even pustular eruptions are seen. Beri-beri is very common among the natives but very rarely attacks the American, although it may occur in the adjoining house. Puerperal women seem to be very susceptible to the disease, and the mortality is very high among them.

Smallpox is very prevalent. In the provinces mild cases are often seen in the village streets. When it occurs among our soldiers it seems to be of a specially virulent type, and the mortality has been very high. Of great interest is the excellent work which has been done since the American occupation. Vaccine farms were started at once and compulsory vaccination enforced, with the result of greatly diminishing the disease, especially in the city of Manila, where the percentage of cases has fallen from a very high figure to a low one.

Bubonic plague seldom attacks the American in the Philippine Islands, and in those few cases which have occurred the victims were of a class which is under no restraint, and who had taken up their abodes in the shacks among a low class of natives. The attendants at the plague hospital, and those who have handled the dead, have not contracted the

disease. All this does not prove that the plague would not be a very serious disease if it once got into the crowded tenement districts of the cities of the United States, especially San Francisco, where there are so many Orientals. The Manila Board of Health has been very energetic in disinfecting and burning infected districts, and in destroying rats, but as yet they have been unable to stamp the disease out entirely.

I left the islands before the cholera epidemic had gained any marked headway, and saw only a few cases.

Tuberculosis is among the first rank of the diseases of the Philippines. It is a scourge among the natives, and naturally many Americans, whose general condition is apt to be lowered by the heat, by intestinal disease, malarial and other troubles, fall victims to tuberculosis in one of its many forms. Its course in the American is extremely rapid, far more so than at home. No one can realize how rapidly pulmonary or joint tuberculosis can prove fatal who has not seen it in the tropics. After seeing a number of cases die while under conservative treatment, I amputated a number of times in cases of joint tuberculosis as the only means of saving life.

Elephantiasis is either absent or very uncommon. During my tour of duty I did not see a single case, and I have not been able to find any one who did see cases in the Philippines. This seems queer, as the filaria nocturna is quite common. I found it in the blood of a number of Chinamen and natives which I examined. It is contrary to the authorities on tropical medicine, who say that when filaria nocturna are present elephantiasis always exist. Mycetama or fungus foot of India is not very uncommon, and on casual view may be mistaken for elephantiasis.

Yaws, which is known as boté among the Visayians, is very common in Samar and Leyte, where most of the natives are attacked with it at some time during their lives. It is a repulsive sight to see the natives often walking about the streets covered with the granulomata which are present in this disease, discharging a thin yellowish pus and bleeding on the slightest contact. They all seem to recover, and do not take the disease very seriously.

Venereal diseases are not more common than under similar conditions in the United States, and they follow about the same course. When a soldier who is already debilitated, or is suffering from intestinal or some other disease, contracts syphilis, it is only natural that it should run a more virulent type. Away from the large cities and seaports venereal disease was not very prevalent among the natives.

Leprosy is quite common, and every town throughout the southern islands has its quota of victims in various stages of the disease. In some places they are segregated, while in others they live at their homes among their families. Manila has a large leper hospital, San Lazero, where all known cases are sent. A leper colony is at present being established.

In all hot climates skin diseases are rife, and the Philippines are no exception. Dhobie itch is a term used loosely by the laity and by a great many of the profession to include a variety of skin diseases. The term originated in India, where the word dhobie means washerman. It is a form of tinea infection which was supposed to be conveyed by the washermen. The commonest skin disease seen in the Philippines is an infection with one of the ringworms, of which there is a great variety.

Pemphagus contagiosa and impetigo contagiosa are very common. Ulcers and boils are seen in great numbers and in all classes, but are especially common among the bare-footed community.

Discussion. Major William H. Arthur, Surgeon U. S. A.: My own service in the Philippines led me into a different line of duties and experiences from those so interestingly outlined in Dr. Webb's paper.

I was twice on duty in the Archipelago; first in November, 1899, when I arrived there in command of a hospital ship to take home some of the débris of General Otis' army; the second time when after a few months' service in China with the relief expedition I reported for shore duty, and was assigned to the charge of the base hospital at Dagupan, Province of Pangasinan, in Northern Luzon. Though in this hospital (and subsequently in the principal military hospital in Manila, of which I took charge in December, 1901) we saw a few recent gunshot wounds, as the active campaign was practically over in Luzon we encountered more of the remote effects of the small-arm projectiles on the body. These presented no points of particular interest, being treated exactly as they would be at home. Our surgery consisted principally of hernias, appendicitis cases, and liver abscesses, of which a large number following amebic dysentery were seen and operated upon, with a result of about 40 per cent mortality. All, or nearly all, the fatal cases were those in which the dysentery persisted, or in which there were multiple abscesses. Our general results in surgical cases were very good, and I can say this without undue egotism, as the majority of the operations were performed by my subordinates, under my direction, and not by myself, my administrative duties keeping me many hours at my desk, when I should much have preferred to be in the operating-room.

Under, in some cases, what the civil surgeon would consider very unfavorable conditions, we secured good aseptic results by simple cleanliness. At the Dagupan hospital (which was a fine old Spanish school building) the operating-room consisted of the end of a ward partitioned off with bamboo poles, over which sterilized cotton sheets were stretched. These were changed daily. Two rooms of this kind were provided, one for septic and one for clean cases. The water supply at Dagupan consisted of a shallow well. Water was drawn from this, promptly boiled and filtered, and carried to the operating-room in large tin vessels supplied by the quartermaster's department.

At the Manila hospital the operating-rooms were much better, but the results were as good (I mean as far as securing asepsis was concerned) in the Dagupan establishment. Our greatest enemy was dysentery. I say this advisedly, notwithstanding the fact that we had Asiatic cholera and plague to deal with. As Dr. Webb says, we were disappointed in the ipecac treatment of dysentery, though the East Indian surgeons I met in China were enthusiastic about it.

The question of amebæ is still in doubt; that is, we do not know yet how to tell the pathogenic ameba from the perfectly harmless kind. Dr. Musgrave describes fourteen varieties found in stools. Those which are found to contain red blood corpuscles as supposed to be the most suspicious, but the question needs further investigation. Musgrave gave doses of salts to perfectly healthy soldiers who had been in the islands a year or more, and found amebæ in the stools of 68 per cent. None of these men had ever had at that time any symptoms of dysentery. The few cases of dysentery caused by the Shiga bacillus infection (acute "specific" dysentery, it was called) were uniformly and rapidly fatal. I saw only seven case in my own practice. Out of twenty-nine at the First Reserve Hospital in Manila twenty-three were fatal.

The operation recently advocated and performed here in New York with promising results (I mean utilizing the vermiform appendix for irrigating the large intestine) was not tried while I was in the Philippines. The thorough irrigation of the lower bowel by high injections with the patient's elbows on the floor, his thighs and legs being supported on a low table built for the purpose, seemed to insure very fair irrigation of the descending and transverse colon.

Typhoid fever did not become very prevalent in the Philippines; I only saw twelve cases in the two years I spent in Philippine military

hospitals. This failure to spread I attributed to the fact that there are, for some reason, few flies in the islands. The cases that did occur followed the usual course of the disease, unmodified by the climate.

Plague occurred in very few cases among Americans, and was uniformly fatal. The Chinese and Filipinos probably were more exposed, from the fact that they habitually go barefooted. The only two cases that came to my hospital in Manila (only officers, soldiers, and civilian employes of the army were treated in this hospital) occurred in teamsters who had been living in native huts.

Asiatic cholera appeared in the spring of 1902, and many cases occurred in Manila and the provinces, especially among the natives. The Chinese escaped almost entirely. This was explained by the greater cleanliness of the Chinese and the fact that they drink very little, except water in the form of tea, under ordinary circumstances. Many cases were brought to the First Reserve Hospital but were promptly transferred to a special cholera hospital as soon as their nature was determined. Most of the cases I saw were of the "cholera sicca" type, the intestinal discharge not being sufficiently copious to account for the rapidly supervening shrivelling of tissues, coldness of extremities, and fatal termination. The cholera infection is the most virulent and the toxemia the most intense I have ever seen in any disease. Fortunately, its spread among intelligent people can be easily prevented. The health department found great difficulty in controlling cholera among the ignorant natives, and the priests did much to render its efforts nugatory by telling the people that they were being poisoned by the Americans.

Smallpox, which had been a scourge, was controlled by vaccination, and I saw only a few cases in the Dagupan and Manila hospitals.

What Dr. Webb says of tuberculosis corresponds exactly with my experience. The disease runs a very rapid and destructive course in the Philippines; indeed, this is true of all pyogenic processes. Wounds may be made to heal as promptly as at home by great care in securing asepsis, but once they become infected the destruction of tissue is very rapid and destructive; more so than I have ever seen it in similar cases at home.

Prof. Samuel Lloyd: I do not know why I should be called upon to talk about medicine and surgery in the Philippines, for I have never been there.

There are a few things that Dr. Webb suggested that have appealed strongly to me. In the first place, having heard Dr. Webb before, and in fact, being responsible for his appearance before you to-night, I have had the opportunity of talking over with him some of these subjects. There is one thing in particular that we are in accord with, and that is in regard to the medical superstitions that have been handed down from time immemorial, yet when we come to the actual clinical experiences we find that they do not exist. Still they are referred to in the text-books and are occasionally met with in private practice. I am glad that in the Philippines they find the same condition of things. Text-books show that in their treatment of certain subjects the authors copy blindly what has been said in older books, without proving the truth of the statement.

With regard to liver abscesses, while we see but very few, yet I have had four in my experience. All four were instances of single abscesses and all but one recovered. The question brought out by the doctor was very interesting, in that it showed the amebic conditions corresponded exactly with the conditions produced by other infections. Absence of infection from débris is what we expect. The progress of the disease is in the walls or at the periphery. No germ will live on its own débris, but it crawls out where it can get something to feed on. This applies to the ameba as well as other pathogenic germs. That is why in attempts to destroy germs in such instances little result will follow unless we dig away the lining membrane and get into the tissues beyond the point of degeneration.

Another point that has interested me very much was the handling of gunshot fractures—the comminuted fractures—because it bears out thoroughly my idea of treating compound fractures. I believe that we should carefully render the parts aseptic, replace the pieces of bone that have periosteum attached to them, remove the fragments that have been denuded of periosteum, and then place the limb in the best possible position for recovery. Such a course of procedure will be productive of good results. Both Dr. Webb and Dr. Arthur referred to cases that later gave bad results. I think that those cases had the injuries near joints, and in the cancellous structure, and may have been subjected to those influences which lead to osteomyelitis. I have now at St. Francis Hospital a gunshot wound of the knee-joint which has entirely healed. The X-ray shows nothing to account for the conditions present, and yet this patient has a useless and painful knee.

The question arises, "What is it due to?" The probabilities are that we shall have to amputate it. It seems to me that the attempt at saving the limb in order that we might possibly get a good limb was well worth while. A good many such limbs have been saved only to be amputated later, but a great many more have proven useful and satisfactory. It is time enough to amputate when it is demonstrated that it is useless.

The absence of infection in so many cases in the Philippines to me is very wonderful, especially as it occurs in a country where they neglect the general rules of sanitary living. One would expect septic diseases to spread very rapidly there, and as a consequence, operative work would be followed more frequently by infection. It is remarkable that they obtain such results. It may be that the absence of flies has something to do with it, in that they can not carry the streptococci infection from one patient to another.

Professor Ogilvy: I should like to ask a question with regard to bullet wounds of the abdomen. Dr. Webb referred to a case in which the patient died from peritonitis, and I would like to ask him if most cases were operated upon? I should like also to know the percentages of recovery with and without operation.

Dr. Walter D. Webb: All cases that I saw of gunshot wounds of the abdomen, with perforation of the intestines or stomach, if not operated upon, died either immediately or soon after their infection from peritonitis. Only two cases recovered, and in both there were perforations of the intestines or stomach. One of these cases I operated upon, stitching two holes in the colon. The other case was operated upon by another.

Dr. Peterson: I think the doctor should congratulate himself upon having had his experience in the Post-Graduate Hospital, with its great facilities in teaching medicine, surgery, and pathology, and I am sure he appreciates the training he has obtained here. We, as alumni of the hospital, congratulate ourselves upon sending out such a man to do such work in the Philippines.

Dr. Webb: I strive to be a general practitioner and do all sorts of work, and I certainly appreciate the training I have obtained here, which has helped me to do something in various lines of work.

Dr. Hexamer: It has been stated that typhoid fever was not very prevalent in the Philippines, and I am at a loss to know why. It struck me that, especially in the Department of Northern Luzon, every post-

surgeon had a sterilizer, and every post-surgeon labored to see that the sterilizer was working; if not working, the chief surgeon of that department was to be informed of that fact by wire. I think this is the reason why there was so little typhoid fever. I landed the same time Dr. Webb did, only he went south and I went north; my experience has been the same as his.

With regard to dhobie itch, it covers a multitude of sins, like charity; but most of these cases of itch were simply and solely the results of contamination of sudamina by the finger-nails; besides that, most cases of dhobie itch were cases of impetigo contagiosa, and a great many cases occurred among the natives. These cases were found in the section of the country I was in.

There was another thing about the gunshot wounds in the Philippines which interested me very much. Give a Filipino a rifle with a range of one thousand yards, he was sure that everything on that rifle had to be used, and consequently he used it. If he should have used a rifle with a range across a room, the Filipino would use it at a range of one mile. I know of an instance of Company L, Twelfth Infantry, lying in the open in a rice paddy, within twenty-three yards of the insurgent's trench. They remained there fifty-five minutes, and not a man was hit. I saw one cartridge the use of which was not permitted by the rules of modern warfare. I saw the Filipinos coming in conflict with the ladrones. He had a brass jacket on the cartridge. Where the bullet went I do not know, but I do know that I dug the jacket out of the man's shoulder.

Dr. Webb entirely left out syphilis and gonorrhea in his remarks. I know it has been stated by members of faculties of schools, and prominent ones too, that syphilis among the Filipinos was a curable disease, that is, would disappear entirely. My experience with syphilis and venereal diseases generally was obtained in this school, whose survivors are Bangs, Otis, and many others of equal reputation. I have seen syphilitic cases among the natives with complete perforation of the hard palate, just as clean and round and of same nature as seen in children three or four years old, and I have seen them die, and I do not think it is time to make the claim that syphilis is different there from what it is here. I could not see any difference. I remember a patient, a clergyman in charge of a church, who had secondary syphilis as bad as I ever laid my eyes on. In the town I refer to there were probably twenty syphilitic subjects. The Filipinos get married when they are

only ten or twelve years old; as soon as they are big enough to toddle they get married. Syphilis in the Philippines is not an uncommon disease. I hope that Major Webb and Dr. Arthur will add something on this subject. Gonorrhea is the same there as it is on Twentieth Street.

Among the Filipinos there seems to be a lack of the power of repair. A man may run a bamboo thorn into his hand and suppuration will follow, which will have absolutely no relation to the severity of injury received at all. I once saw a Filipino who had been to a chicken-fight, such as takes place every Sunday there. It seems that the chicken had struck him with his spur just above the knee-joint. The injury was poulticed when I first saw him with what looked like spinach. This I removed and washed the part, and sent him to the hospital. Within twenty-four hours that man had an infection of a very septic nature, with the inguinal glands involved. Within another twenty-four hours the man was dead. I wanted to open the part up and wash it out, but the family objected to it.

As Dr. Webb has already stated, army surgeons, above all other men, must be men of expediency, and must be able to do something without anything. At Manila everything possible was to be had for the asking, from quinine pills to a binocular microscope, but when back in the country sixteen or eighteen miles from any railway you are upon your own resources. Medical men in the United States Army have proven that they are equal to any emergency. As General Sherman once said, "War is hell," but I know that for the medical men in the Philippine Islands it is two hells.

WHAT CONSTITUTES DEATH AND WHEN DOES IT OCCUR?*

Herbert Spencer, it will be remembered, has defined life as a continued adjustment of internal relations to external relations, and it is doubtful whether any definition of death would be better than a rupture of that adjustment. Ordinarily, of course, every one thinks that he knows when a man is dead. But when looked at more closely the subject is not quite so simple. For example, shall we say that a patient is "dead" when respiration ceases? In the writer's experience a woman suddenly became unconscious and ceased all attempts (even the slightest) at respiration. Under artificial respiration, however, the heart beat for five hours, when artificial respiration was given up. The autopsy showed hemorrage into the ventricles of the brain. Was, then, the woman "living" during the five hours of artificial respiration or not? The question, while it may have somewhat the aspects of a metaphysical juggle, is by no means entirely of that nature. For on it might depend the question of survivorship; the question in law of "Which died first?" involving an entirely different inheritance of property. Again, shall the criterion be the cessation of the action of the heart? Brouardel cites a case witnessed by Drs. Regnard and Paul Loye, in which the heart beat for one hour in a decapitated murderer, and he himself has seen the heart-beat persist fifteen, twenty, and twenty-five minutes in decapitated dogs, and in those dying of hemorrhage. It is no easier if we turn to the brain, for its functional activities are no more necessarily co-extensive with life than are those of the heart and lungs. Unconsciousness is normally periodic in sleep, and pathologically it frequently occurs without involving the cessation of "life." The solution of the riddle really lies in the fact that "death" is a negative term denoting merely the cessation of "life." This throws us back upon the question of what "life" is. Without any desire to dogmatize on this much debated question (and leaving others free to inject into it any additional factors or elements that they please), "life" appears to be merely a convenient name for a series of physico-chemical processes which avowedly differ much in complexity from "inorganic" phenomena, but which have never yet been shown to differ from them in kind. On the contrary, the more we learn about physical and chemical phenomena, the more "physiological"

*Medical Record, August 8, 1903.

phenomena we are able to explain. The essential of "life," then, consists in the *capability* of responding serially and appropriately, by continual adjustments, to changes in the environment. It is not the actual demonstration at every moment of its presence that constitutes "life." For, unless we are to introduce some metaphysical dodge-the-issue (as, for example, "capable of life yet not living, or other empty phrase"), bodies are either "alive" or "dead." What meaning, however, has the word "alive" when applied to the seeds of wheat which grew after having lain thousands of years in a mummy's coffin? Evidently this: A seed represents a collection of chemical compounds which, *under suitable conditions* (of temperature and moisture), are capable of producing, by their mutual interactions, another series of compounds, which, in their turn, are capable of producing, by their interactions, a third series of compounds; the first, second, and third series of compounds representing in their totality respectively the first, second, and third stages in the development of the plant. But, as Ryder has shown, this repetition in heredity is conditioned upon repetition in environment—that is, the seed will respond in a regular serial order only provided the physical and chemical forces act upon it in the regular serial order to which it has been adapted, through countless generations, to respond. If, beyond certain rather narrow limits, the forces acting upon the seed depart from the order and extent for which it has become adapted, then something other than the accustomed "normal" development takes place; and the result is some form of "monstrosity." The eggs of fishes when extruded are flabby and collapsed, and in this condition they appear to be in physico-chemical equilibrium. Placed in water, however, during the first twenty minutes they imbibe it, swell, and become round and smooth, and fertilization occurs. But after the swelling and fertilization have occurred, the contents of the egg are in a different physical and chemical condition than when first extruded, and this different physical and chemical condition it is which involves the next change of state, cleavage. Yet that the latter change is no necessary outcome of the swollen, fertilized condition is shown by the possibility of inhibiting it indefinitely by a lowering of the temperature. When two cleavage spheres are formed, the physico-chemical momenta are different from those acting prior to the first cleavage, and just such as to bring about the redivision into four, and so on; each stage bringing about, under "normal" conditions, the succeeding stage.

The possibility of the continuance of "life," then, depends upon the ability of the chemical compounds which (collectively and at any given moment) we term "the body," to give rise to another similar collection which shall be able *inter se* to maintain a similar adjustment of internal relations to external relations. Conversely, when the formation of such a derivative collection is no longer possible, "death" ensues. Less abstractly put, "death" is the name we give to the inability of the organs to act together with the harmony which characterizes "life." The rupture of the vital harmony does not, however, preclude a certain amount of activity of individual organs. Thus, perfused with blood, or other suitable fluids, the heart may continue to beat, the liver to secrete, etc., though the individual be "dead." This mode of viewing the question seems to be the only philosophical one. For just as there is no possibility of assigning a moment at which, in development, the physico-chemical forces pass over into the "vital," so here there is no possibility of saying when the "vital" forces pass over into the physico-chemical. All we can do is to set an arbitrary limit, by way of definition, and say that the individual is "dead" when the harmony of interaction in the "vital tripod" ceases.

THE POSSIBLE NATURE AND LIFE CYCLE OF THE YELLOW-FEVER GERM.*

Some interesting and ingenious speculations on this subject, especially interesting as showing what some can get out of facts long and well known, are given by Dr. Carlos Finlay, Chief Sanitary Officer of Cuba, in the *Revista de Medicina Tropical* for April, 1903. Starting from the difference in the duration of the clinical course of yellow fever and malaria, the author argues that whereas the human is the permanent host for the malarial plasmode, the mosquito (*Stegomyia*) is, on the other hand, the permanent host for the micro-organism of yellow fever. And that, while the reproductive stage of the malarial plasmode is passed in the mosquito (*Anopheles*), the reproductive stage of the yellow-fever micro-organism is passed through in man. Regarding its nature, though it may seem idle to speculate about a thing that we have never seen, nevertheless the general similarities of all its mani-

*Medical Record, August 8, 1903.

festations suggest strongly that it is similar to the malarial plasmode —that is, that it, too, is a protozoan parasite. Thus we know that, like the malarial plasmode, it requires two hosts to complete its cycle, and one of these hosts is a mosquito (*Stegomyia*). Now remembering the facts of the development of the malarial plasmode—that the embryos leave the salivary glands of the mosquito to enter the body of a non-immune host, there to grow to adult age, multiplying by schizogonia or sporulation in the blood, and continue to do so long after they have become ripe for sexual reproduction, sporulation recurring at regular intervals, and evoking the regular recurring chills which last sometimes several months where not treated—we see that this tenacity of existence in man clearly proves that he is the permanent host for this parasite. But sexual reproduction never takes place in the human, it occurring only in the body of anopheles. Should the latter not appear on time, resting bodies (crescents) are formed, which continue indefinitely the life of the parasite in the human body (though without the production of symptoms) until such time as opportunity arises for the parasite to reach the mosquito. When it does reach that host sexual reproduction results in the production of a large number of embryos, which find their way into the salivary glands ready for immigration into a new, non-immune, permanent host. Should no such host appear, however, the embryos die, either in the salivary glands of the insect, or on infertile soil where they may happen to have been deposited. Again, anopheles will become infected by stinging a malarial subject at any time when the parasite (in the form of resting bodies) is in the peripheral blood, a condition which lasts several months; while we know that stegomyia can be infected from a yellow-fever patient only during the first few days of the attack, the infection of convalescents not being transmitted to the new abode to which they may remove. While we do not know the utmost length of time that the malarial embryos may live in the salivary glands of anopheles, that time must, nevertheless, be comparatively short, as for want of space and nourishment in the tiny body of the mosquito they will not be able to reach their full development. We know positively, however, that the yellow-fever germ can live in stegomyia at least two months (and, in all probability, till the death of the mosquito). How explain this difference? Being the parasite of a minute insect, one would naturally expect that the yellow-fever germ would be much more minute than the malarial germ which has at its disposal, for food

supply, the human body. Recalling the difficulty with which the first investigators recognized the malarial sporozoites in the salivary glands of anopheles, the search for yellow-fever sporozoites in the human may well be a hopeless undertaking. Possibly, however, some larger resting form might be found in infected stegomyias, and its discovery may be assisted by the consideration that it is here that it is to be looked for, and not in the blood of yellow-fever patients. Finally, it is to be remembered that the actual existence of ultra-microscopic germs having now been demonstrated, it is possible that the yellow-fever germ falls into this category. When we remember the small amount of food that a mosquito could supply to a great number of germs, one is inclined to suppose the relation between host and parasite to be one of commensals—that is, the parasite takes part of the food in the mosquito's alimentary canal, as do many intestinal worms in man. In this way might be explained the association of infection with bacteria, which might possibly serve as extemporaneous hosts for the infra-microscopic germs.

Finally, the author adds that, from the prophylactic standpoint, over and above the attempt to exterminate the intermediate host, the foregoing considerations emphasize the importance of the prevention of infection of that host. As regards malaria, unfortunately, such prevention is practically impossible, by reason of the length of the life-period of the parasite within the human body; but it is comparatively easy to prevent the infection of healthy stegomyias by yellow-fever patients.

Racial Resistance.—In the construction of the railroad at Madagascar, the employment of labor from India, from China, and from Africa gave an opportunity for testing racial resistance to climatic diseases. The Indians represented the weakest race and were most contaminated by tuberculosis, alcoholism, and syphilis. They were not habituated to hard labor. The Chinese were much subject to skin disease, and soon passed into marasmic conditions. Both Indians and Chinese were the prey of paludism. The first had a mortality of 432 per 1,000, and the second 769 per 1,000. The Africans furnished a large contribution to the deaths from malaria, and their mortality was 79 per cent. Europeans from the age of twenty to twenty-five of sound constitution resist satisfactorily the climatic conditions of Madagascar, the invalided being mostly alcoholics or those excessive in venery. Madagascar would, however, scarcely seem likely to become a popular health resort just at present.—*The Medical Age.*

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ANTITOXIN IN THE TREATMENT OF DIPHTHERIA.

If all of the problems in medicine were as nearly reduced to an exact science as is the treatment of diphtheria, there would be little to deal with but some figures and facts.

Since the foundation of the science of medicine, no discovery has been of more value to the human race than that of the antidiphtheritic serum, save vaccination against smallpox. It has now been positively demonstrated that the injection of antidiphtheritic serum is harmless. As much or more than 40,000 units have been injected in the treatment of a single case, thus showing its harmlessness. Of course this is an extreme instance, but thousands of practitioners all over the world bear universal testimony to the value of antidiphtheritic serum as a curative agent in this most fatal disease of childhood.

With the overwhelming mass of testimony in behalf of its value, we can not understand why any physician should hesitate to use it. In fact, it seems to us that every physician in the land should be anxious to command so valuable a curative agent as the antidiphtheritic serum. There is everything to be gained by its use, both for the doctor and his client; hence it is good practice to use it in all cases, even where the disease is merely suspected. It is a waste of time in many cases, and particularly where they have existed twelve to twenty hours, to make a

culture. Give the serum; if it is diphtheria, you have anticipated the disease and probably averted a fatal termination. If it is not a case of diphtheria, no harm has been done. Remember that none is so blind as he that hath eyes and will not see.

We believe that if the antitoxin were used at the proper time in all cases of diphtheria, that the mortality would be almost nil.

Current Surgical and Medical Selections.

Fasting and the Cause of Leprosy.—According to Dr. Jonathan Hutchinson, who has long been recognized as one of the first experts on leprosy, the institution of fasting, or, rather, the use of fish on fast-days, is the cause of the growth of that disease in certain parts of the Orient. "Wherever Catholic missions are successful," writes Dr. Hutchinson, in the London Times, with particular reference to India, "there is increase of leprosy." He continues: "The facts which I have brought forward are such as to impose a duty upon the authorities of the Roman Catholic Church to reconsider their fast-day ordinances. The facts seem to show, conclusively, that in all districts where leprosy occurs—in other words, in all places where there is risk of obtaining unsound fish—the use of fish on fast-days ought to be forbidden. I have long ago, and many times, expressed the opinion that neither contagion nor the Crusades, but Christianity, was responsible for the prevalence of leprosy in Europe during the Middle Ages. It now appears that what occurred then is being repeated now in India, and, it is to be feared, in many other parts of the world. . . . A convert from Hinduism to Roman Christianity incurs at once an enormously increased risk of becoming a leper. In most of the Indian asylums 'native Christians' abound, and by far the larger proportion are Catholics. Conversion to any of the Protestant sects incurs some risk, because it removes the prejudice to animal food which, to some extent, is natural to the Hindu mind; but conversion to a creed which imposes the use of fish on one or two days at least of every week increases that risk immensely. My calculation is that the risk to a Catholic convert is twenty fold that of one who remains in the Hindu faith. If I dare trust my figures—chiefly those of the last census—it may possibly, in Bengal, amount to ninety fold." Dr. Hutchinson admits that figures are deceitful, and "statistics are often fallacious," but "the margin which may here be allowed for error" throws no doubt upon "the general bearing of the facts." To resume: "Similar conclusions are suggested whether we examine the statistics of Bengal, Bombay, Madras, or the Punjab. Respecting the Chota

Nagpur district of Bengal, the census compiler writes: 'The great center of Roman Catholic missionary enterprise in this province is Ranchi, where its converts exceed 54,000, or about three fifths of the total number in the province.' The increase during the last decennium was 15 per cent. Now it is in precisely this district that leprosy also has increased (from 4.5 to 5.8 per 10,000), while in all the adjacent districts it has diminished. A fallacy which may possibly to some extent diminish the force of my estimates is, that in some instances lepers who have been registered as 'Christian' may have been converted subsequent to the development of their leprosy. I have no means of knowing whether or not this has been the case to any large extent, and certainly it does not invalidate the records of the Bombay asylum, at which the expression 'Salsette Christian' means a descendant of those who were converted more than three centuries ago by St. Francis Xavier and his devoted colleagues. Most willingly do I bear my testimony to the temporal advantages which have accrued to these by their conversion; and it is because fish fast-days are no essential nor even important part of Christian ritual that I feel entitled to urge that they ought to be done away with. It may not be out of place here to point out that this preponderance of the disease among Catholic converts gives the *coup de grace* to the belief in the contagiousness of leprosy."—*Pacific Medical Journal.*

Diphtheria Contracted from Old Clothing.—The necessity for thorough and careful disinfection of houses and clothing after infectious diseases is shown by an incident which recently occurred in a small Ohio town. A child died of diphtheria, and its mother packed its clothing away in a chest. The mother died fifteen years afterward. Recently the granddaughter opened and handled the contents of the chest, and was immediately taken ill with diphtheria, although there did not exist at the time a single case of the disease in the village.—*The Medical Age.*

Special Notices.

A Systemic Alterative Effect.—The following from *Gaillard's Medical Journal*, by Dr. A. H. Ashley, of Boston, Mass., will interest our readers because of the original way in which he expresses his pronounced admiration for something tried, trusted, and not found wanting. The letter was written to our old friends, The Antikamnia Chemical Company, and reads as follows:

Gentlemen—Your various combination tablets, as well as antikamnia tablets, have been used by me for a number of years, and I can only say that they have uniformly given me the best results. But, my dear sirs, why have you waited so long to give us the very best combination of them all? I, of course, allude to your "Laxative Antikamnia and Quinine Tablets."

If there is anything known to the medical profession which will take their place in that class of diseases where one wishes to relieve pain, control the temperature, and at the same time produce, by laxation, a systemic alterative effect, it has not been my good fortune to find it. In those cases of severe neuralgia, and particularly in ovarian and menstrual pain, where morphine was our only hope (and where, after its administration, we had indigestion, bowels bound up, nausea, habit, etc.), you have in Laxative Antikamnia and Quinine Tablets a remedy which will, my experience has taught me, replace morphine and meet all requirements.

I am slow to be carried away by enthusiasm for any drug or combination of drugs, but I freely and voluntarily confess that in these tablets you have given to the profession a remedy so effective and reliable in its action that it offers good excuse (or a mitigating circumstance anyhow) for a little effusion from one who, as a general thing, is not given to gushing.

With my best wishes for your future and many thanks for your elegant preparations, I am sincerely yours, A. H. Ashley, M. D.

Ecthol in Scarlet Fever.—By John M. Turk, M. D., Canton, Ga. I feel called upon to say something plain and practical in regard to the usefulness of Ecthol in the above disease. I have used Ecthol for one year in an epidemic of scarlet fever, and I must say that it has more than met my most sanguine expectations. It has accomplished more than any agent I have ever used in a practice of forty-three years. Ecthol robs scarlet fever of all the distressing sequels, such as nephritis, ear complications, adenitis, membranous angina, etc., if the remedy is given early enough and as often as every two or three hours in bad cases, until desquamation is over, then not so often. A great many of my cases were malignant and quite a number ushered in with convulsions. In some of my malignant cases I have doubled the prescribed dose. It prevents in a large degree the disintegration of cellular tissue, and will not disappoint any who may use it in scarlet fever.—*New Orleans Medical and Surgical Journal*, May, 1902.

Hypertrophied Prostate with Difficult Micturition.—For an old gentleman, seventy-four years of age, who was suffering from hypertrophied prostate with difficult micturition, I prescribed Sanmetto. The results were favorable, and after taking two bottles of Sanmetto he was so much improved as not to require the use of the catheter, which he had been compelled to use for several months previously at least once in twenty-four hours. I have since prescribed Sanmetto in five similar cases with equally good results. E. C. Culbertson, M. D.

Keith, Ohio.

THE

AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

FECAL IMPACTION OF THE CECUM: REPORT OF A CASE.*

BY W. R. BURR, M. D.

In casting about for a subject to discuss before you, it occurred to me that a personal experience, in the general practice of medicine, would prove of more interest than to rehash what text-books and medical journals have to say concerning any of the common diseases with which we are called upon to cope.

I have chosen, therefore, to have something to say about fecal impaction of the cecum, and to report a case that was of much interest, and more trouble, to me in trying to arrive at a true state of affairs and give effectual treatment. In fact, it made me wish, before I got my patient relieved, that I had never heard of, to say nothing of having seen, a case of intestinal obstruction of the fecal-impaction variety. It caused me several weeks of work and worry, and nearly exhausted my patience as well as my patient.

Fecal impaction of the sigmoid flexure is not so uncommon, nor is it very difficult to treat successfully, but cases of impaction of the cecum are, I take it, rare, as I have only seen one case in about fifteen years' practice, and I find very little said on the subject in past or current literature.

Text-books, old and recent, offer scant information and comfort in dealing with this perplexing trouble. They have little to say in regard

*Read before the Crittenden County Medical Society.

to diagnosis and seem to be provokingly brief on treatment, to one who has a case in hand and is seeking solace from the masters, old and new.

Going back half a century in medical literature and consulting Watson's classical work on practice, which was in advance of the day, and in which I often seek and find aid when the knotty problems in practice present themselves, I was disappointed to discover that he dismissed the matter by saying: "The mechanical impediments that occur within the bowels are still more various in kind than those which constrict without." He mentions "hardened fecal matter," and "intestinal concretions," and as to treatment advised calomel and opium, the latter to restrain the purgative qualities of the former, as internal remedies; as an attack from the rear he advised that "from two to six pints of warm water be thrown up gradually and gently." And he gave the comforting information that the "indurated and hardened feces are softened and brought away" in this manner, and that "warm water acts as an internal fomentation." This was very good in theory, but the practice of the method does not "pan out" either easily or rapidly. If the impaction is in the cecum, it is difficult to get the warm water in contact with the mass.

A contemporary writer, Dr. Geo. B. Wood, whose work on practice is exceedingly interesting and instructive to this day of advancement in medicine, said in writing of the causes of intestinal obstruction: "One of the most frequent causes of obstruction is an impaction of feces. This, though the result of pre-existing functional derangement of the bowels, becomes itself, when so considerable as to close the passage and to resist peristaltic movement, the chief source of mischief, and the obstruction may, therefore, be mechanical. This is the form which is least dangerous and most easily relieved by the proper remedies." But he gives very little in regard to treatment, and like Watson advised the use of purgatives and injections of warm water, saying that "if the obstruction consists of fecal masses or other concretions, it may be loosened, brought down, and gradually brought away."

My little experience, though, makes me skeptical as to this form of obstruction being "the least dangerous, and the most easily relieved by the proper remedies."

Coming down to recent text-book literature on the subject, we get about as meager information on diagnosis, and if anything less as to treatment.

Dr. Pepper, in his dissertation on intestinal diseases, did not have much to say on fecal impaction of the cecum. He said that in some cases fecal impaction might "last for weeks without any threatening symptoms," which may be true. As to treatment, he advised large injections of warm water, and "an emulsion of castor oil and turpentine in small and frequently repeated doses."

Osler says "There may be retention of feces for weeks without exciting serious symptoms. In other instances there are vomiting, pain in the abdomen, gradual distension, and finally the ejecta becomes fecal. The hardened masses may excite an intense colitis or even peritonitis." This seems to me to be the danger in these cases.

He too advises the injection of warm water, and says "The patient should be in the dorsal position, with hips elevated, and it is best to let the fluid flow in slowly from a fountain syringe."

Dr. J. M. Anders, of Philadelphia, in his admirable and up-to-date work on practice, gives more light on the subject than any author consulted. He says: "Accumulation of feces is a common cause of intestinal obstruction, impaction taking place in the cecum or sigmoid flexure. Though not infrequent in children, fecal impaction is more common in adults (particularly in females), in the hysteric, the demented, and the hypochondriac." He says futhermore that "The retained fecal masses may become hard, but for some time permit the passage of soft or liquid material through the interstices of the accumulation, until finally either complete obstruction takes place or the condition is relieved. So severe may the obstruction prove in some cases as to result in inflammation, ulceration, or even perforation of the bowel."

He advises against the use of purgatives until the mass has been moved, as "in many cases," he says, "there is both paresis and inflammation at the seat of the impaction, so that these agents would thus be useless, if not harmful." He advises the use of high rectal injections, "copious, steady, and frequently repeated, with the patient in the inverted position," and also kneading of the abdomen methodically.

The case I wish to report was about two months in getting relief after I discovered the cause of her trouble. It was very intractable, and both the patient and I were almost at the point of despair before the obstructive impaction in the cecum began to disappear.

The patient, a married woman of middle age and of hysterical tendencies, had been complaining for several weeks prior to the 5th of June of last year, on which date I was called to see her.

She had complained of loss of appetite and chilly, aching sensations, constipation, and had lost considerable flesh. I had sent her some medicine a time or two, as she was averse to having a physician called to see her.

When I first saw her I found her still complaining of aching, with a chilly period occurring nearly every morning. She had a soft and rather rapid pulse and a slight elevation of temperature, the time of my visit being about the middle of the afternoon. The evening temperature would run higher, and she would have a cold, clammy sweat the latter part of each night. She had lost flesh to such an extent, and was so weak and anemic, that her friends had about all reached the conclusion that she was a victim of tuberculosis. Her bowels were irregular, and when they did move the passages were small, thin, and watery. She informed me that she had had, for several weeks, "a lump in her side," which had been gradually getting larger; that it had occasioned some soreness, but had given her no special pain.

On examination I found, in the right iliac region, a mass about the size of a medium-sized cocoanut, that seemed to me to be about at the location of the cecum. I was at a loss, however, to determine just what I had encountered; whether it was a large abscess, a malignant tumor, or a fecal impaction. The mass was hard and almost immovable. There was no cancerous cachexia and pain was very slight, even when the mass was manipulated. I could find no trouble with the lungs; but I could not make up my mind as to the cause of the chilly periods, the fever following, the aching, and constant sweating the latter part of the nights.

Nearly everything I had heard or read of occurred to me as the cause of my patient's condition; in fact, I think I entertained for a moment that favorite diagnosis of our osteopathic friends, namely, "a constriction of the pyloric end of the stomach." But each cause was in its turn excluded, and I got very much "at sea" over my case.

I forgot to state that my patient had not been troubled with nausea or vomiting; indeed, there were no marked disturbances of function except the prolonged constipation and the frequency of micturition. Urinalysis, however, threw no light on the case.

The case was such a knotty problem that I asked for consultation, and Dr. W. London, of Franklin, Ky., was called, who after giving the case a thorough examination and weighing the history, expressed himself in doubt as to what we had to deal with. He thought, as I

did, that there was no pulmonary trouble, but was at a loss to account for the nature of the mass in the abdomen.

We very nearly reached the decision that some surgery would have to be done; but, after much deliberation, we came to the conclusion that we had found a case of fecal impaction of the cecum, and began treatment with that in view.

We tried Pepper's plan of giving small and frequently repeated doses of castor oil and turpentine; we gave salines in rather large doses, and used injections of warm saline solution with olive oil, frequently inverting the patient and passing a colon tube around nearly to the enlargement, so as to get the injection as much in contact with the impaction as possible. We also practiced persistent and systematic massage, and tried in every way we could think of to soften the mass.

We saw her nearly every day for about four weeks, and while we persisted in the use of every measure we knew or could read of, we were seemingly doing very little to better her condition. There would only be an occasional coloring of the injected fluid, with rarely a little solid fecal matter.

Finally, however, we thought the mass was softening, and there were small passages of fecal matter each day. The enemas were continued twice daily until the 31st of July, and laxatives were given regularly. The mass had by that time about disappeared.

She was then put on tonics containing strychnine, to give tone to the bowel, and the laxatives were continued. She gained flesh and strength, and was apparently in good condition until about two months ago, when she began to lose flesh again, and complained of disordered menstruation, leucorrhea, and other symptoms referable to the generative organs.

I examined her and found she was suffering from endometritis and a retro-displacement of the uterus. This organ was large and baggy, and there was a polypus of considerable size attached to the external os—certainly a sufficient combination and complication to satisfy the most enthusiastic searcher after gynecological trouble.

AUBURN, KY.

THE INHUMANITY OF REFUSING THE PARTURIENT WOMAN THE BOON OF ANESTHESIA.*

BY I. A. SHIRLEY, M. D.

That a paper on the above subject in this enlightened age, at the threshold of the twentieth century, when every reputable text-book on obstetrics that has been published within the last twenty-five years without exception recommends the use of anesthesia in certain stages and to some degree in all labors, should be necessary, seems at first glance an absurdity. And yet notwithstanding all that has been written, taught, and said in books, colleges, and medical societies, the astounding fact remains that there are a goodly number of otherwise excellent practitioners who on account of personal timidity or some will-o'-the-wisp fad positively refuse the bearers of children in their travail the labor-saving, the pain-saving vouchsafed to them by the proper use of anesthesia. These men, too, who can not be accused of indifference to human suffering, and especially to the woman in child-birth, but who refuse to offer her the aid found only in anesthetics, as an excuse for their cowardice tell us with hands raised in holy horror that to do anything to mitigate her pain would be a violation of the Scripture, that says "In pain shall she bring forth." But remember, my dear fellow, you who will not even for the sake of suffering wife, mother, or daughter under any circumstance violate Holy Writ, that at the time the Divine Scribe penned the above, thousands of years ago, he doubtless had not counted on the Massachusetts Yankee discovering a real blessing to alleviate the pangs of child-birth; writing at his time nothing possible could be done; now, two thousand years later, it is entirely different.

And again, these self-same medical philanthropists who sit idly by whittling sticks, smoking their cob-pipes, or telling big yarns while the poor woman almost wears her life out, begging and pleading in vain for help when it could be readily given, would not even so much as have a tooth pulled or a felon lanced without crying out in the very agony of their souls, "Give me something, and oh! give it quick, for this pain will surely kill me!" Away with these boasted humanitarians, who like whitened sepulchers are full of rottenness and dead men's bones, which is abundantly proven by their hypocritical cry of "I am

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the suffering woman's friend!" while allowing her to labor in the agony of agonies without raising a finger to help her; and then in a moment of "baby pain" experienced by themselves demand in thunderous tones help of every kind and lots of it, and that, too, in the thousandth part of a second. Just think of it; a competent physician of a mountain county recently told me that he had done an evisceration, removing the fetus piecemeal, without giving the poor woman a whiff of anything; her suffering under the circumstances can better be imagined than described.

The effort on the part of some practitioners to gain for themselves a reputation for conducting painless labor by overwhelming the patient with the anesthetic is to be condemned, along with the practice of withholding it entirely. This on the one hand, and no anesthetic at all on the other, is what we are fighting against, and is, in fact, the cause of inflicting you with this paper. Of course, when an operation of any magnitude, such as version, especially podalic, is to be done, surgical anesthesia is absolutely indispensable.

Therefore to keep in the middle of the road, giving chloroform or ether to an obstetrical degree in ordinary cases, in all cases in fact that are not so mild as to be uncomplainingly bearable—and by obstetrical degree I mean to the extent of mitigating the severity of the pain so that a woman can bear it with comparative comfort—given at the beginning of a pain, generally at the completion of the first stage of labor, and avoiding the other extreme of drowning her with it, is what I, in the name of humanity and in behalf of suffering parturiency, am contending.

But says one, "Don't the uterine contractions materially lessen in power and frequency when you give an anesthetic?" Yes, I admit that such is usually the case at the beginning, but by partially withdrawing it for a brief time, or continuing it in diminished amount for awhile, until confidence is restored, all will be well, and usually the labor will go on with increased force and vigor. Give an anesthetic one time to a parturient woman, and she will surely beg for it again at each subsequent accouchement. A Schemmelbusch frame with covering and drop-bottle, with a supply of Squibb's chloroform, occupy a conspicuous place in my obstetric bag, and without which I consider my armamentarium would be very incomplete.

You will notice that so far I have not mentioned any particular anesthetic; chloroform has been the anesthetic almost exclusively used

in all countries so far in obstetrical practice. Yet, on account of the increasing danger of chloroform in general use as compared with ether, I am of the opinion that ere many years ether will be the anesthetic in every department of practice. They even go so far as to tell us now that ether is no more irritating to the bronchial mucous membrane or to the kidneys than chloroform, which has in the long gone by had the decided preference when either of the above results were to be feared. But whatever anesthetic you use, see to it that it is of the best quality, which, in my opinion, is Squibb's; and while it costs about double as much as any other chloroform or ether, use no other. The trifling additional expense should not be considered for a moment. The period will arrive in the history of medicine when every physician who sits idly by while his parturient patient is suffering most excruciating pain unaided, when he could make her comparatively comfortable and the labor far more endurable, but will not, will deservedly be relegated to medical oblivion, or kicked out of the lying-in chamber forever, with the deserved opprobium, "Depart from me, ye hard-hearted counterfeit of the obstetric art, forever."

WINCHESTER, KY.

OTHER SOURCES OF TYPHOID INFECTION THAN THROUGH THE MEDIUM OF DRINKING WATER, AND HOW TO GUARD AGAINST THEM.*

BY SEALE HARRIS, M. D.

I am very glad, indeed, that our President, in assigning my theme as one of the "regular reporters" for this meeting of the State Medical Association, selected that of "Other Sources of Typhoid Infection Than Through the Medium of Drinking Water, and How to Guard Against Them," because from my observation, and from the recent researches made in large epidemics of typhoid fever, I am convinced that the medical profession greatly exaggerates the part that drinking water plays in the dissemination of that disease. The subject is, therefore, a "congenial" one to me.

Sanitarians, in writing learned theses on the etiology of typhoid, are wont to make such statements as the following: "Show me a city's

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mortality statistics from typhoid, and I will tell you the character of its water supply," and "from any given case of typhoid fever the cause can, and should be, discovered"; but the fact remains that in very many epidemics, and in more of sporadic cases, the cause is frequently from other source than drinking water, or it is not discovered at all. Recent investigations seem to show that, except in the cities, the germs of typhoid are disseminated more in other ways than through the medium of drinking water. I do not mean to deny that typhoid fever is largely a water-borne disease, but in this article I am not expected to discuss its spread through drinking water—all of us know too much about that side of the question — though in considering the other sources of typhoid infection, I shall mention some methods of conveying the disease where polluted water is indirectly the cause, though the infection is not taken into the system in drinking water.

The great epidemics of typhoid fever that visited the concentration camps of the United States volunteer army during the Spanish-American war, in 1898, were carefully studied by a board of army surgeons, consisting of Majors Walter Reed, Victor C. Vaughan, and Edward O. Shakespeare. In ninety-two regiments investigated there was a total number of 107,973 men; 20,738, or nearly 20 per cent, developed typhoid fever; and of these, there were 1,580 deaths—a mortality rate of 7 per cent of those who contracted the disease. This board examined the records of all these cases, they visited all the cities where the camps were located, they investigated carefully the source and quality of the water supplies of all the camps, also their food supplies, and the methods of disposing of their excreta—in fact, they investigated everything that could have any bearing upon the cause and spread of typhoid fever among our soldiers, more of whom suffered and died from typhoid fever than from Spanish bullets. All the members of this board were sanitarians of renown and great experience, and having been given every possible facility for making investigations, their conclusions are of great value and have almost revolutionized our ideas regarding the origin and spread of typhoid fever. Their report, which was published by the Government and which may be obtained free by application to the Surgeon-general of the army, is one of the most valuable contributions to the literature of typhoid fever that has been published in years. Their report presents so forcibly some of the facts which I desire to bring out that I shall quote freely from it.

Among the general conclusions of this board are the following statements:

"Infected water was not an important factor in the spread of typhoid fever in the national encampments in 1898."

"It may be stated in a general way that the number of cases of typhoid fever in the different camps varied directly with the methods of disposing of the excretions."

According to these distinguished authorities on typhoid, the most active agents in the dissemination of the disease in over 20,000 cases were: Flies, personal contact, and dust, though they thought that in some of the camps the drinking water was infected.

There are many sources of typhoid infection other than through the medium of drinking water, the more important of which I shall discuss under separate headings.

Milk. Infected milk is a fruitful source of typhoid fever. Eberth's bacillus will thrive and multiply in milk without affecting its taste or appearance. It will live for days even in sour buttermilk, and fresh milk is an excellent culture medium for the germ. Some have thought that the germ can be ingested by the cow in drinking water and be excreted in the milk without destroying its vitality. However, this is hardly probable, unless the cow actually has typhoid fever, and there is no evidence to prove that cattle are subject to the disease. It seems possible that the germs might be taken into the stomach in water, and not having been destroyed in the alimentary canal of the cow, be excreted in the feces, but the germ has never been demonstrated in the excreta of the cow. Bacterial examination of milk has frequently shown the colon bacillus, and it seems possible that the typhoid germ could infect milk in the same way; that is, by the udders becoming soiled with the feces containing the germ.

Milk may be infected in any of the following ways: From the udder or teats of the cow, from the hands of the milkman, from milk cans and pans which have been washed in infected water, from milk diluted with infected water by unscrupulous dairymen, from dust holding in it the typhoid bacillus, and by infected flies.

Pastures for cows are commonly located in the marshes and lowlands, where the soil is fertile and the grasses grow luxuriously and the drainage from the surrounding country, or from the town, flows into the shallow streams which traverse them. When the rains come they wash the sewage into these streams, the pastures are flooded, and

puddles of water remain for some time. The cows go into the streams for water, or lie down in the puddles, which, if infected, can readily in many ways infect the udder or teats and eventually infect the milk. If the milkman happens to be nursing a case of typhoid fever, and is not as careful as he should be in disinfecting his hands, he can easily infect the milk. A number of cases have been traced to this source. If the milk vessels are cleansed in polluted water, as can be done for instance by washing them in the shallow streams in the pasture, they can infect the milk contained in them.

During my college days an epidemic of typhoid fever occurred among the students who boarded at a certain hotel, fifteen or twenty of whom contracted the disease. They used the same drinking water that was drunk by more than five hundred other students. A committee from the Faculty was appointed to inspect the hotel premises, but nothing was found there that could account for the epidemic. Upon further investigation it was found that the cows which belonged to the proprietor of the hotel were pastured in a lowland, through which traversed a shallow stream. The cows were milked in the pasture; their udders and milk vessels were cleansed in the water from this infected stream. There had been some cases of typhoid fever in houses located above and near the stream, and evidently the rains washed the excreta into the stream which flowed through this meadow, thus polluting the water and indirectly the milk. The committee reported that the epidemic was probably due to infected milk, whereupon the proprietor discontinued the use of the milk from the cows which were pastured in this meadow, and no further cases of typhoid developed among the students.

In the towns and villages, most of which have no sewerage systems, the cows are almost invariably pastured in the lowlands of the suburbs of the town, where all the filth and impurities drain directly into the streams that supply the cows with water. It certainly seems reasonable that the milk can become contaminated in some of the ways that I have mentioned, and I am convinced that much of the typhoid fever in such towns and villages, as well as in the rural districts, is due to infected milk.

Flies. The common house fly has been shown to be a frequent carrier of the typhoid germ. He has for many years been under suspicion of being guilty of that crime, but he has been recently found guilty beyond a reasonable doubt, and has therefore been condemned to

death, or to banishment from homes which would be free from typhoid fever.

Majors Firth and Horrocks, two British army surgeons, examined flies, which had been allowed to crawl over typhoid stools mixed with fresh cultures of the bacilli, and all of those examined contained the germs of typhoid on their legs, heads, wings or bodies. It has been supposed that the fly may take the germs into his stomach and give them off in his excrement, but these observers failed to find the typhoid germs in any of the excreta of flies that had been fed on typhoid stools.

The observations of Dr. Alice Hamilton, of Chicago, are of more practical value, and they leave no doubt but that the fly is a carrier of the typhoid germ. During the recent epidemic of typhoid fever in Chicago, she examined the conditions in the locality where there were the greatest number of cases. She caught flies from two undrained privies, on the fences of two yards, on the walls of two houses, and in the room of a typhoid patient. These flies were placed in eighteen sterilized tubes containing suitable culture media for the growth of the typhoid bacilli, and from five of these tubes the germs were isolated. At the time that the collection was made from one of these privy vaults, no fresh typhoid discharges were being emptied into it, so that the presence of the typhoid bacilli on the legs of the flies found there apparently proves that the germs already in the vault were alive and multiplying, or that the urine or feces of convalescing or recovered cases of typhoid still contained the typhoid bacilli.

We all know how flies swarm around privy vaults, cesspools, or other places where there is human excrement, and they have frequently been seen to fly directly from such places into kitchens and light upon food which was being prepared for eating. With undisinfected typhoid discharges being deposited in such places it can readily be seen how flies can infect food.

During last summer, in the town of Union Springs, which is supplied with water from an artesian well nine hundred feet deep, there occurred a case of typhoid, the origin of which we were not able to satisfactorily explain. During the next two months there developed three cases in two families on adjoining lots. It so happened that none of the three persons who contracted typhoid saw the first patient referred to. They were drinking the same water as drunk by over three thousand other people, yet there was only one other case of typhoid in the town at the time, and they all had different milk supplies. The flies in that particular

neighborhood were very numerous because of the fact that there is a livery stable on the next block, so that it seems probable that flies must have been the carriers of the infection in these cases.

The Army Board above mentioned makes the following statement regarding the dissemination of typhoid by flies among the soldiers in the Spanish-American war:

"Flies were undoubtedly the most active agents in the spread of typhoid fever. Flies alternately visited and fed on the infected fecal matter and the food in the mess tents. More than once it happened that when lime was scattered in the fecal matter in the pits, flies with their feet covered with lime were seen walking over the food. Typhoid fever was much less frequent among messes who had their tents screened than it was among those who took no such precautions. Typhoid fever gradually died out in the fall of 1898 in the camps at Knoxville and Meade, with the disappearance of the fly, and this occurred at a time of the year when in civil practice typhoid fever is generally on the increase.

"The first pits at Knoxville contained, before the first twenty-four hours had passed after the arrival of the troops, fecal matter infected with the typhoid bacillus. Flies swarmed everywhere. Instead of abating, the disease increased. The soldiers were using the same water used exclusively by the citizens of West Knoxville, and among the latter there was not at that time a case of typhoid fever."

Dust. It is perfectly possible for the typhoid bacillus to dry and become adherent to particles of dust and thus get into the atmosphere. Numerous observers have demonstrated that the typhoid germ can retain its vitality in dry dust for a variable length of time. Uffleman has shown that it may live as long as sixty days in dry soil, and in moist soil it may live and propagate for years. The soil may be polluted with the typhoid germ either by the urine or feces of a typhoid patient. It has been found that the feces of a person developing typhoid may contain the germs in large numbers before any symptoms arise to indicate that he has the disease. In from 20 to 30 per cent of cases of typhoid fever the urine contains the germs. Gwyn reports ten cases of typhoid bacilluria in which pure cultures of the micro-organisms were found in numbers varying from 10,000,000 to 500,000,000 to the c.c. The urine is sometimes so full of the germs that it becomes cloudy. I have recently had such a case, and I may add that it resulted in death. In some cases the urine may contain the germ for months after the patient is well of

the disease. So the typhoid fever patient before he is sick, and after he is well, may scatter the infection.

It is not probable that dust is carried for great distances in the atmosphere except in fierce winds, though dust is certainly one of the means of conveying the infection. Infected dust in rooms where typhoid fever patients are confined may cling to the hands, faces, or clothing of those exposed, or it may get into the secretions of the mouth and nose, and later be swallowed with food or water. When the floor is swept off, or the rugs and carpets dusted, as is frequently done by people who are ignorant of the danger from infected dust in the typhoid sick-room, the germs may fall on food or milk, or even into the family's drinking water, and those who have not been in the room may thus become infected.

Recently there have been several cases in which the typhoid germs were inhaled into the lungs, there producing a true typhoid pneumonia, without any involvement whatever of the intestinal tract. One of these cases occurred at the Johns Hopkins Hospital, and was diagnosed and treated as an ordinary case of broncho-pneumonia. The autopsy showed the characteristic lesions of a broncho-pneumonia, with large numbers of the typhoid bacilli in the lungs, blood, and spleen, but there was no lesion of the intestinal tract. There have been many other cases of typhoid fever reported in which there was no involvement of the intestines, though the Eberth bacillus was found in the lungs, blood, spleen, gall-bladder, and meninges. In fact, there is much evidence to warrant the belief that the infection of typhoid is not infrequently taken into the lungs, and therefore we should guard against inhaling dust that has had the opportunity of becoming infected with the typhoid germ.

Eugene Wasden, of the Marine Hospital Service, asserts his belief that in the majority of cases of typhoid the lungs are the infectionatria, and that colonies of the bacilli first locate at some point in the respiratory tract, generally the lower lobes of the lungs. He says that in practically all cases typhoid sepsis occurs early in the disease, and that the lesions in the intestines do not occur until after the germs get into the blood. He reports his last series of (27) cases, in all of which he was able to demonstrate the primary pneumonic focus, and in them all he found the lung symptoms characteristic of a broncho-pneumonia or a sub-acute bronchitis. He thinks that dust is the great disseminator of typhoid fever, and remarks that "it would be better to filter the street-sprinkling water supply and allow the drinking of hydrant water."

As to the part that dust played in spreading typhoid fever in the concentration camps during the Spanish-American war in 1898, I will quote the following from the Army Commission's report:

"The shell roads through the encampment at Jacksonville were ground into the finest dust by the heavy army wagons. The scavenger carts carrying the tubs filled with fecal matter passed along these roads, and their course could often be traced by the bits of feces falling from the tubs. Other vehicles ground up the fecal matter and dust together and the winds disseminated these particles here and there. Men inhaled the dust. It was deposited in food in mess tents by the roadside, and men ate the dust. Pollution of the soil by those suffering with typhoid fever was of frequent occurrence. Cases of this disease under the diagnosis of malarial fever were repeatedly treated throughout their sickness by the regimental surgeons. Patients convalescing were also returned to their respective companies. Under these conditions there must have been abundant opportunity for contamination of the camp site with the specific germs. We are, therefore, inclined to the opinion that infected dust was one of the factors in the dissemination of typhoid fever"

Contact Infection. A number of physicians hold to the theory that typhoid fever is contagious in some unknown manner, and in upholding their position they point to the fact that it is a frequent occurrence for those who are nursing typhoid to contract the disease; and that with a water supply of undoubted purity, other persons in the house with a case of typhoid fever contract the disease. With our present knowledge of the habits and life history of the typhoid bacillus, the origin of these can be easily explained.

It has been proven that typhoid bacilli can live and retain their virulence for two or three months on cotton, woolen, and linen cloth. Persons exposed to a case of typhoid may carry the germs on their clothing or person for weeks and thus contract the disease and carry it to others. Nurses, in handling the discharges and soiled linen or bedding of a patient sick with typhoid fever, may get the germs on their hands, and unless they are careful about disinfecting them, in handling their own or other people's food may also be the means of conveying the infection. The typhoid bacilli may live for weeks under the finger nails.

Under the heading of dust I necessarily had to discuss some phases of contact infection and I will not dwell further on it, though in supporting the views which some may consider unorthodox, I can not

refraid from quoting the following paragraph from the Army Board's report:

"It is more than likely that men transported infected material on their persons and in their clothing and thus disseminated the disease. We have condemned the method as followed in many of the camps of detailing men from the ranks to act as orderlies in the hospitals. In some of the commands it was customary to detail a hundred or more men from the line every morning. These men went to the hospitals and handled the bed-pans used by the persons sick with typhoid fever, and at night returned to their comrades. The most of these men were wholly ignorant of the nature of the infection or the methods of disinfection. In fact, at one of the division hospitals we saw orderlies go from the hospital and partake of the midday meal without even washing their hands. These men handled not only the articles of food which they ate, but passed articles to their neighbors. It seems to us that a more certain method of disseminating an infectious disease could hardly have been invented. Certain tents were badly infected and the majority of their inmates had the disease, while other tents wholly escaped. Blankets and tentage became soiled with the typhoid discharges, and in this way the disease was propagated and carried by the company wherever it went. We therefore believe that personal contact was an important factor in the spread of the disease."

Uncooked Vegetables. Celery, water cress, lettuce, and other vegetables which are eaten without cooking may become infected with the typhoid germ, either from the soil in which it is grown or from being washed in polluted water. Several epidemics from this source have been reported, notably the one at Northampton, Mass., in an insane asylum in which there occurred a large number of cases of typhoid where the source of infection was seemingly traced to eating celery which had been grown in beds fertilized with "night soil."

Oysters may become infected in their beds, or in polluted fresh water into which they are sometimes placed to undergo the process known as "plumping." A number of typhoid epidemics have occurred which were undoubtedly due to infected oysters. Last December at Portsmouth, England, fourteen of the prominent guests who had attended the mayoralty banquet developed typhoid fever. Upon investigation it was found that the Emsworth oyster beds, from which were taken the oysters served at the banquet, were located where the town's sewage was discharged directly over them; and as this sewage was almost

certainly polluted with the typhoid germs, it seems certainly almost probable that the oysters became infected in that way.

Ice. Freezing does not actually destroy the typhoid bacillus, though it unquestionably inhibits its growth and virulence. However, it has been known to live and retain its virulence in ice for more than a hundred days. Manufactured ice is not likely to become infected, since it is made largely from sterilized water, but the ice from lakes, ponds, and streams, which is stored up in winter and kept until spring, is almost as likely to be infected as drinking water from the same sources, though, as I have said, the cold of ice greatly lessens the virulence of the typhoid germs and in four months will destroy them.

The prevention of disease is the highest and noblest art in our profession, and when physicians and the laity realize that typhoid fever is a highly infectious disease and so become imbued with the importance of preventing its spread, then will we hope to make it one of the rare diseases. I fear that the majority of physicians are too negligent in the prophylactic management of typhoid fever. It would be better for the world if physicians sent for in cases of typhoid fever were to prescribe methods for preventing other members of the family from contracting the disease, and let the patient go without medicine, than to do as is frequently done by physicians who ought to know better, that is, dose the patient with medicines, which in the majority of cases do no good, and make no effort to find the source of the infection, nor use any methods to prevent its spread. That is a very sensible law in North Carolina, which makes it a criminal offense, punishable by fine or imprisonment, for a physician who is treating a case of typhoid fever to fail to instruct the attendants regarding the methods of disinfecting the discharges of the patient. If a physician has not the moral courage to do his duty in preventing disease there should be laws to "hand the wretch to order."

How can we guard against the infection of typhoid fever in sources other than drinking water? I shall take the position that the place to begin is with the patient, because there you have a known focus of infection.

The typhoid fever patient should be isolated, as we do other infectious diseases, in a well-ventilated room, preferably on the sunny side of the house. Fresh air and sunlight are more potent disinfectants than many of those sold on the markets. Windows curtains, pictures, and other hangings, carpets, rugs, and unnecessary furniture, which catch dust and

hold the infection, should be removed from the room. His personal and bed linen, upon becoming soiled, should be immersed in an antiseptic solution before being taken from the room, and before use again should be boiled for not less than half an hour. The excreta should be carefully disinfected. Simple immersion in an antiseptic solution is not sufficient to destroy the typhoid germs in feces—it should be kept in contact with the solution for several hours. The bed-pans and urinals should constantly contain a small amount of the antiseptic solution, and the discharges should immediately be placed in another vessel containing at least two parts of the solution to one of the feces. The feces should be thoroughly broken up and mixed with the disinfectant solution, and should so remain for at least four hours before being placed in the water-closet, if the house is connected with a sewer; if not, it may be covered with dry earth at a place where the drainage will not go into the water supply. Under no circumstances should the excreta of a typhoid patient be placed in a privy vault, or exposed in any place where it can be reached by flies, or becoming dry get into the atmosphere as dust. In other words, do not depend entirely upon chemical disinfectants to destroy all the typhoid bacilli in the discharges of any patient suffering with that disease.

Urotropin given internally, in doses from five to ten grains every four hours, will completely sterilize the urine, and since in some cases of typhoid bacilluria the germs may be found in the urine for weeks after convalescence, the urotropin should in those cases be kept up for several weeks after the patient's recovery. Probably the best chemical agent for disinfecting urine after it has been voided is formalin (a 40 per cent solution of formaldehyde in water). One teaspoonful added to half a pint of urine will completely sterilize it in a few minutes. For disinfecting feces with formalin use two parts of a solution containing one tablespoonful of formalin to one quart of water to one part of feces.

Carbolic acid (3 per cent solution), preferably with from 3 to 5 per cent of common salt, or with a small quantity of a mineral acid, next to formalin is probably the best disinfectant for destroying the germs in typhoid excreta, and has the advantage of being cheaper than the formalin.

The cresols, which occcur as impurities or by-products in the manufacture of phenol, are more powerful germicides, and less toxic to man, than the carbolic acid, and since they are also cheap, are coming into general use. Creolin, which contains 10 per cent cresols held in solution

with soap, is a very effective germicide when used in a 5 per cent solution. Lysol contains 50 per cent of cresols with neutral potash soap, and in a 1 per cent solution is as powerful as a 5 per cent solution of carbolic acid. The crude carbolic acid, since it contains as an impurity the cresols, is preferred by some, who claim that it is not only cheaper but a more efficient germicide than either the pure carbolic acid or the cresol preparations.

Mercuric chloride is used perhaps more than any other agent for disinfecting, and is one of the most powerful antiseptics that we have, yet in disinfecting feces it is probably almost inert. It forms upon the addition of organic matter the albuminate of mercury, which coats over the substances and temporarily inhibits germ life, but it has very little powers of penetration. With feces it likely forms the sulphide of mercury, which has very slight bactericidal properties, before it has time to have much effect in destroying the bacilli in the feces. The use of mercuric chloride in typhoid fever should be limited to disinfecting the hands and in washing off the floors, walls, and furniture.

Nurses after handling the patients' soiled linen, or the bed-pans and urinals, should use great care in disinfecting their hands, particularly before taking food. Simply washing the hands is not sufficient; the space under the nails should be carefully cleansed, and the hands after thorough washing in soap and hot water should be bathed in an antiseptic solution, preferably a 1 to 1,000 solution of mercuric chloride. Those who are nursing a typhoid patient, or who are constantly in the room with him, should change their clothing before coming in contact with others.

After the death or recovery of a patient the room should be disinfected as in other infectious diseases.

In guarding against milk infection it is well worth the while for every family to examine carefully into the milk supply. Dairies which supply milk to cities should be regularly inspected by an efficient medical officer. Cows should not be pastured on lowlands upon which the sewage of small towns is drained. Milk vessels should always be washed in boiling water before being used. Milkmen should use great care in cleansing their hands and the udders of cows before milking. In case of an epidemic of typhoid fever, or even with a single case in a family, it is best to boil the milk and protect it from the dust and flies after it is thus sterilized.

The proper disposal of the excreta of the typhoid patient will in a great measure prevent infection from dust. However, it should be

remembered that the sputum of the typhoid patient may contain the Eberth bacillus, and it should be burned or disinfected as we do in tuberculosis of the lungs.

Flies present a greater problem. Of course, if the excreta is disinfected and placed where the flies can not reach it, they can not carry the infection ; but every fly should be regarded with suspicion, because our neighbors, even at considerable distances from our homes, may not take any precautions in disinfecting the excreta of their typhoid sick. We should therefore screen with great care our windows and doors, particularly in the rooms where food is kept, prepared, or served. Something may be done to destroy flies in their breeding places, which is largely in the excreta from horses, though they breed to some extent in human excrement. Cities should adopt ordinances requiring the proprietors of livery stables, and individual owners of horses, to screen the piles of horse manure, or to keep them covered in such a way that flies can not breed in them. Chloride of lime, which will destroy the larvæ of the house fly, should be kept in stables by the barrelful, and every few days should be sprinkled over the horse manure. These methods of lessening the number of flies are practical and inexpensive, and should be carried out on farms as well as in cities.

Typhoid infection from uncooked vegetables would be very much lessened if the practice of using human excrement, or "night soil," as a fertilizing agent were not permitted, particularly in growing vegetables which are eaten without cooking. Before eating any raw vegetables they should be thoroughly washed in water of known purity, and in boiling water where it will not destroy their flavor.

Oysters which are suspected of being infected should never be eaten raw. Oyster beds should not be allowed near the openings of city sewers, and oysters in being "plumped" should be placed in water of known purity.

Ice, in its manufacture, should be made only of pure water, and that which is obtained from ponds, lakes, and streams should not be cut near the outlets of sewers, or at other places where the water is likely to be polluted. However, ice is such an infrequent source of infection for typhoid fever that we may almost wholly disregard it as a factor in the production of the disease.

Finally, as I have said before, the prevention of typhoid fever should begin by limiting the infection to the patient under treatment ; and when physicians do their full duty in instructing the laity regarding the infec-

tiousness of typhoid fever, as well as to see that proper methods are carried out to prevent its spread, we may almost hope that typhoid fever will cease to be one of our endemic diseases.

UNION SPRINGS, ALA.

ANTITYPHOID INOCULATIONS.*

BY E. H. WILSON, M. D.

Director of the Hoagland Laboratory.

In spite of our extensive knowledge of the etiology of typhoid fever and of the methods of its dissemination, the experience of the English in South Africa and our own experience in the late war with Spain only confirms the statement that "typhoid fever is the greatest scourge of modern armies." It is the inseparable companion of armies in time of war, all the conditions often favoring its development; fatigue, the occupation of a polluted soil, defective food, pollution of the food and water supply, all tend to bring about a condition which often impedes military operations and even invalidates their results. Military surgeons should, therefore, be deeply interested in the prophylaxis of typhoid fever, and be posted in the progress made toward this end. When we consider that in the mobilization of our volunteers, thousands of men at the age most susceptible to typhoid were brought together under unusual conditions, in portions of the country where the disease was endemic, that these men, not being professional soldiers, did not at first appreciate the necessity of a proper sanitary administration; the wonder is, not that we had some typhoid, but that we did not have a great deal more. The methods at our command to protect our camps from typhoid are simple: the isolation of the sick, the disinfection of the discharges, and the protection of the food and water supply. If these could be strictly carried out, typhoid could not gain a foothold, but in practice it is not possible to do this. Men will drink forbidden waters, and the ubiquitous house-fly will visit the latrines and the mess tent. It must be distinctly understood that the writer is far from intending to disparage these, our only practical means of safeguarding our soldiers from typhoid, but it would seem that if it were possible to protect them from typhoid as we protect them from smallpox, namely,

*Reported in the Journal of the Association of Military Surgeons.

by immunizing the individual soldier, the problem would have advanced a long way toward its solution.

To render the individual soldier refractory to typhoid fever would be beyond dispute the best of all prophylactic measures.

We know from the work of Sanarelli, Chantemesse, and Widal that we can immunize animals against the inoculation of a fatal dose of typhoid virus, but can we conclude from the methods used in experimental immunization that they are applicable to man?

R. Pfeiffer[1] used sterized cultures of the typhoid bacillus for prophylaxis. Levy[2] followed Pfeiffer in the opinion that immunity could thus be established.

The first practical application of this method on any scale was made by Major Wright[3] of the Army School at Netley, and before detailing the results of these inoculations, it may be well to say a few words of the method of preparing the prophylactic fluid which was used.

The method of preparing the prophylactic fluid is described by Wright and Leishman[4]. The vaccine consisted of a lysolized (one per cent lysol) four-weeks-old culture of a virulent typhoid bacillus.

The virulence of the culture used in the preparation of the virus was established and maintained by a series of intraperitoneal passages through guinea pigs. The culture medium used was ordinary broth with one per cent pepton, accurately neutralized. Wright used culture flasks holding about two and a half litres, with a lateral tube near the bottom to which a rubber tube was attached, which was plugged with a piece of glass rod, and furnished with a pinchcock. The flask was inoculated by puncturing the rubber tube with a hypodermic syringe. After inoculation, the flasks were incubated at thirty-seven and a half degrees C. for from fourteen to twenty-one days, after which there was little or no growth. The contents of the flask was then transferred to a mixing-jar which is furnished with a paraffin thermometer to record the internal temperature of the culture and to show the point when it has reached sixty degrees C. The jar is heated in a water bath from ten to fifteen minutes after the internal temperature has reached sixty degrees C. After cooling, its sterility is tested by culture and a portion is drawn off for standardization and to the rest is added one-tenth of its bulk of a five per cent solution of lysol. If the lysol is added in a concentrated form it causes a massing of the bacteria.

Two methods are employed to standardize the virus: one is a turbidity test, the other is a physiological test by subcutaneous inoculation of guinea pigs.

Inasmuch as the virus includes the dead bodies of the bacteria, the degree of the turbidity is an index of the number of undissolved bacteria in the mixture. The test is made by examining the fluid in a cell under the microscope, and referring the turbidity to a scale.

The toxicity of the vaccine is determined by injecting a series of guinea pigs with doses of 0.5, 0.75, 1, and 1.5 c.c. The pigs should weigh from 250 to 300 grammes each. Death usually takes place on the second or third day. The minimum toxic dose is 0.5 c.c. per 100 grammes of body weight. The dose for man is influenced by the turbidity and the toxicity of the individual brew of the virus. When the turbidity is great and the minimum lethal dose was 0.5 c.c., the dose for man was fixed at 0.5 c.c. On the other hand, doses as high as 1.5 c.c. have been used when the toxicity and the turbidity was low.

Following the injection of this virus in man, there is a certain sequence of events regarding which Wright says[7]:

First. That when the quantum of antityphoid vaccine employed produces well-marked constitutional symptoms, a decrease in the bactericidal power of the blood, and a corresponding increased susceptibility to typhoid infection may supervene in the period immediately subsequent to the inoculation; upon this negative phase of increased susceptibility to typhoid infection, however, there may be expected to succeed, probably within a period of three weeks or less, a phase of increased bactericidal power and a greater resistance to typhoid.

Second. That when the quantum of antityphoid vaccine employed produces severe constitutional symptoms, a negative phase of increased susceptibility will be produced, which may never be followed by a positive phase of increased resistance.

Third. That when the quantum of antityphoid employed is reduced to the point at which marked constitutional disturbance is avoided, a positive phase of increased resistance may be expected to supervene without the intervention of any negative phase, and in many cases within twenty-four hours.

RESULTS.

Wright and Leishman[4] give the results of the first experiments made in India in 1898–9.

There were 2,835 inoculated and 8,640 were uninoculated.

There were 27 cases in the inoculated, or 0.95 per cent.

There were 213 cases in the uninoculated, or 2.5 per cent.

There were 5 deaths among the inoculated, or 0.2 per cent.

There were 23 deaths among the uninoculated, or 0.34 per cent.

Taken as a whole, this would appear to show that a certain measure of protection was conferred by the inoculation.

In the Fifteenth Hussars in India[5] the morbidity among the inoculated was 0.55 per cent and the mortality 0.27 per cent. In the uninoculated the morbidity was 6.14 per cent, and the mortality 3.35 per cent.

Wright[6] reports the results of the inoculation of 1,705 officers and men at Ladysmith.

Not inoculated 10,529, inoculated 1,705.

Number of cases in uninoculated 1,489.

Number of cases in inoculated 35.

Proportion of attacks to number of men uninoculated 1 in 7.07, inoculated 1 in 48.7.

Number of deaths from typhoid: Uninoculated 329, inoculated 8.

Proportion of deaths to total men in group: Uninoculated 1 in 32, inoculated 1 in 213.

Proportion of deaths to total number of attacks: Uninoculated 1 in 4.52, inoculated 1 in 4.4.

Results obtained by inoculation among the officers of the garrison at Ladysmith: Uninoculated 171, inoculated 44.

Number of cases: Uninoculated 43, inoculated 9.

Proportion of attacks: Uninoculated 1 in 4, inoculated 1 in 5.

Number of deaths: Uninoculated 5, inoculated 2.

Proportion of deaths to number of men: Uninoculated 1 in 34.2, inoculated 1 in 22.

These results would appear to be distinctly encouraging, inasmuch as they show that the proportion, on the one hand, of attacks, and on the other of deaths, from typhoid was seven times smaller in the inoculated as compared with the uninoculated.

Marsden[8] used the method in the immunization of nurses serving in the typhoid wards of hospitals. He refers to the ephemeral fever following the inoculation as a possible mild attack of typhoid, and says: "I think its very mildness would speak only too strongly for the contention that there is an increased resistance to typhoid infection." Cayley[5] does not believe that the statistics from the army can be of much value, as the details could not be sufficiently worked out; but he does believe that the attacks of typhoid fever in those who had been

inoculated were milder, and that the disease was of shorter duration. Rolleston[10] sums up his results in the Yeomanry Hospital at Pretoria as follows: 1st. That antityphoid inoculation does not absolutely protect against a future attack of typhoid. 2d. That when a second attack occurs in an inoculated person there is an interval of at least six months. 3d. That inoculation protects against a fatal termination of the disease.

Foulerton[11] goes very thoroughly into the matter and concludes that it is not a procedure for general application, but should be confined to soldiers and nurses serving in the army and in typhoid hospitals. He also urges the necessity of repeated inoculations. Washbourn[12] disagrees with Rolleston in his observations at Pretoria, and is not inclined to view it with favor, although he admits that the inoculation protects for a few months. In a subsequent article[13] he expresses the opinion that the mortality was greater among the inoculated than among the uninoculated.

It will be seen from all this testimony that in protective inoculation, properly practiced, we have a prophylactic measure upon which it is too early to express a final opinion, but which is worthy of further trial.

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BROOKLYN, N. Y.

ANTENATAL RIGOR MORTIS.*

BY C. E. PADDOCK, M. D.

In presenting this paper for your consideration, I am conscious of the fact that it is not based upon any scientific experiments on my part, but I ask your indulgence because of the fact that the two cases which I report are the first to be recorded in this country.

That we may the better understand this subject, I shall discuss rigor mortis in its postnatal state, that is, in the body which has legally lived. It is to J. W. Ballantyne I am indebted for much of my information upon the subject. In his work "Teratology" he furnishes a great deal of valuable material and complete historical notes.

Rigor mortis is to be considered an unfailing sign of death, and according to the now almost generally accepted theory of Brücke, which has been proved by experiment, it results from a coagulation of muscular albumen. This coagulation occurs with a shortening of the muscle fibers and produces no outward effect. In other words, there is no displacement or movement of the limbs, or of the joints; this is due to the fact that the antagonistic muscles are undergoing the same changes. Nysten (*Recherches de Phys. et de Chimie pathol.*, Paris, 1811) and J. Bernstein (*Lehrbuch der Phys.*, 1894) look upon rigor mortis as a last contraction of a dying muscle, but according to Bernstein it is due more to the pouring out of the myosin than to the shortening. Next to the coagulation of myosin is a chemical condition to be observed. In the living passive muscle we find upon cross-section a reaction neutral or slightly alkaline; in the active muscle we have the formation of lactic and phosphoric acid and the occurrence of an increased amount of CO_2 (Landois, *Lehrbuch der Phys.*, 1900). L. Hermann (*Lehrbuch der Phys.*, 1900) and DuBois Reymond have shown that upon cross-section the reaction of rigor mortis muscles is always acid, containing lactic acid and CO_2, and if we compare the chemical constituents of the working muscle with those of a muscle in rigor mortis, we will find a remarkable similarity. In both cases the muscle is shortened and thickened, and in either case heat is produced. The amount of CO_2 furnished is, according to L. Hermann, in exact

*Inaugural thesis, presented to the Chicago Gynecological Society, April 17, 1903. Reported in the American Journal of Obstetrics.

proportion to the amount of muscular exercise. The only difference we know in the two conditions is the fact that in the one the contractions after a few moments cease, while in the other case, through the coagulation of the muscle albumen, irreparable damage is done. In the first case, it may be a fact that the substances produced, such as the acids and perhaps some unknown products, are carried off by the circulation (L. Seitz).

While the etiology may not be sufficiently proved, there are a few facts known to us which influence the condition. For instance, we know that certain experiments hasten or diminish rigor mortis; we know that the injection of lactic acid and CO_2 in the beginning of rigor mortis will hasten it. We know also that heat quickens the condition and cold retards it. Its appearance and duration are influenced by age, temperature, and the mode of death. In cases of long illnesses or violent deaths which have been preceded by muscular exhaustion it appears and disappears early. A fluid medium does not influence it in any way (Brown-Séquard). The greater the muscular development and the smaller the amount of antemortem fatigue, the longer the rigidity will last. When a joint, stiff with rigor mortis, is forcibly bent, the stiffness does not return if the rigidity has been well established, but it will return if the rigor has not been complete.

A period of muscular flaccidity and contractility constitutes the first stage in the cadaveric change. This period of softening of the muscles is not to be confounded with the cadaveric softening that follows rigidity. During the period of softening, the muscles are easily excited to contraction by the interrupted current. In this respect they agree with the passive living muscle. The second stage is characterized by a cadaveric rigidity which begins as soon as elasticity and muscular irritability cease, and it lasts as a rule until putrefaction begins. During this stage the muscles do not change their positions, but remain exactly as they were at the beginning. An example of this is seen in the soldier killed after an exhausting march and found lying with his gun in his hand ready to fire. This cataleptic condition proves that rigor mortis can come on instantaneously and that it does not entail a change of position. It has been claimed that rigor mortis is dependent upon the nervous system. This has been disproved by dividing the nerve supplying certain muscles, and also by the removal

of the entire brain and spinal cord. In cases of decapitation the condition was not altered. The time of the beginning and the violence of rigor mortis is dependent upon the development and strength of the muscles.

The fetus is endowed with muscular structure the same as the child or adult, and is subject to many of the diseases of later life. Certain of its muscles are in constant use for weeks before birth, and respond to external stimuli. This being so, and in view of the foregoing facts regarding rigor mortis in the adult body, what reason have we for believing that it does not or can not exist in the dead fetus? Proof that it does, and that it has been recognized for many years, will be shown in my report of cases.

History.—The first recorded case of antenatal rigor mortis was that of Chowne, Lancet, 1840. It was not seen by him until one hour subsequent to delivery, but from the description it was an undoubted case. The next case was reported by Schultze in 1857. This was following a long labor of three days, the child being dead but rigid. (*Vollkommen leichenstarre.*) Curtze's observation was published in 1866, and in 1870 Tourdes noted that in Strassburg cadaveric rigidity had been detected in twin fetuses at the fifth month of intrauterine existence. In 1870 a series of cases was reported at a meeting of the British Medical Society. Griggs, P. A. Young, Ashburton Thompson and Parkinson described cases, and with the exception of Thompson were of the opinion that they were in true rigor mortis. The latter, however, took the ground of a possible tetanic spasm occurring in articulo mortis and persisting after death. Bailly, in 1876, reported rigor mortis in a twin pregnancy. In 1877, Martin reported two cases. At about this time Pinard, in an article upon the fetus (*Dictionnaire Encyclop. des Sciences Med.*, 1878), announced his conviction that the rigidity was truly of the nature of rigor mortis and affirmed that its presence might make the delivery of the infant difficult. In 1880, L. W. Müller and Dagincourt reported cases, and the latter wrote an important thesis upon the subject. During the next few years followed reports by Boxall, Jones, Davidson, Stumpf, Sanger, Dohrn, Feis, Langé, and Steinbuchel. In 1894 Ballantyne reported one case and in 1902 we have three cases reported by Seitz. J. H. Evans in the Australian Medical Gazette for November, 1900, gives two cases. Dr.

Evans' cases are of interest because of the fact that an absolute death of the fetus had been diagnosed in each case, and also that the stiffness complicated the delivery. In each of his cases there had been a severe hemorrhage with a premature detachment of the placenta. In the case of Griggs the labor was at term, with a profuse hemorrhage. The time of the hemorrhage was one and one half hours previous to the birth of the fetus. The rigor mortis was just appearing. In a case reported by O. Feis, the woman was a septipara in labor at term, with uterine hemorrhage. The head was born with a delay of the body. Fetal movements were noticed eleven hours before birth. After a forcible delivery with unmistakable signs of rigidity of the body, which became more pliable, the rigidity returned, proving that the rigor mortis was in the early stage. The post-mortem findings showed ecchymoses in the lung, pleuræ, and pericardium. Aspirated mucus in the trachea and bronchi. Liver, spleen, kidney, and brain were congested.

In the case of M. Lange the woman was in labor shortly before term; there was profuse hemorrhage and strong fetal movements and fetal heart tones. Three hours later the heart tones were not heard. The fetus was born in rigor mortis, in the first stage. The post-mortem findings were the same as in the case of O. Feis.

Case of Ashburton Thompson (Brit. Med. Jour., 1874). The patient was twenty years of age, primipara, in prolonged labor with a forceps delivery. The fetal movement had not been heard for seventy-two hours. He reports that the rigor mortis was just passing away.

L. W. Miller reports a case of prolapse of the cord and forceps delivery. The fetal movements were noted thirty minutes before birth, and the pulsation in the cord one half hour before. The rigor mortis was just appearing.

I do not deem it necessary to enter into the details and give a full description of the cases to which I have referred in the literature. But as an example which presents a similarity to the reports which have been given of the foregoing cases, I will merely report three by Ludwig Seitz and the two which have come into my own practice.

Ludwig Seitz.—Case I.—Quintipara, 38 years old, eight months pregnant. Premature detachment of a normally situated placenta. Hemorrhage very severe. Four hours before the arrival of the physician the mother detected motion; the heart tones not observed.

After the rupture of the membranes, with the woman in collapse, the child was delivered by forceps. It was very cyanotic and rigid. The blue appearance of the child stimulated the midwife to practice artificial respiration. In this case the probable time of the death of the fetus was at the time of the separation of the placenta and the profuse hemorrhage, this being about four hours before birth.

Case II.—Primipara, 25 years old, meconium and slowing of heart tones following a prolonged labor. Chloroform had been administered. The head in the first position. The child was soon extracted and the rigor mortis was very pronounced in the shoulder. A few moments later another smaller fetus was born dead, but not in rigor mortis. One half hour before the completed extraction the heart tones were positively heard.

Case III.—Primipara, 25 years of age. Before coming to the clinic the forceps had been applied. Upon admission the heart tones were not heard, and the contracting ring was at the umbilicus. Craniotomy was performed and child extracted without difficulty. Both arms and shoulders were stiff, and the lower extremities slightly so. All the muscles, however, were somewhat softened by manipulation, but in a few minutes they were in rigor mortis. The time that death probably occurred was during delivery, as the heart tones ceased then. Albumen in the urine, fever, loss of blood, or other factors that predispose to rapid occurrence of rigor mortis were absent.

The cases of the writer are as follows: Case I.—Mrs. R., Quadripara, aged 35, in labor near term. A history of a hemorrhage for twelve hours, which when seen by me was very excessive. The child in a transverse position with the hand prolapsed, the cervix admitting four fingers. As soon as possible, version was performed. While operating I found it somewhat difficult and remarked upon the extreme rigidity of the child. Having turned and grasped a foot, I was still aware of an abnormal amount of rigidity. There was a gradual relaxation as I brought the body into the pelvis, and when the child was born dead, the lower extremities, while not stiff, were still slightly so and the arms quite markedly flexed and rigid. The rigidity did not return to any marked degree while I remained, some two hours. In this case the death was undoubtedly due to the hemorrhage, which had existed more or less all day. The fetal movements had not existed for ten hours, and no attempt had been made to listen to the heart-sounds.

Case II.—Mrs. V., 30 years of age, primipara, in labor at term. Pelvic measurements normal. Position, right occipito-anterior. The contractions of the uterus were not hard for the first thirty-six hours, and there would be intervals of an hour or more without a pain. The head was still high, the os admitting one finger, and the cervix about two centimeters in length. Pain soon commenced to be more regular, at intervals of five minutes, and at the end of twelve hours examination showed the cervix effaced and the os about two centimeters. The heart tones were good at 140. The bag of waters was presenting. The membranes at this time were accidentally ruptured, and five hours later the heart tones could not be determined and pains rather weak with but little advancement of the head. The os dilated to about the size of a dollar. After waiting until 11 p.m. I decided to dilate and extract. While I had made a diagnosis of the death of the fetus, I nevertheless decided to make a forceps extraction. The head came over the perineum readily, but the shoulders delayed the delivery, and when the child was extracted the condition of rigidity was pronounced. I can not describe the delivery of such a case in any better way than to liken it to the extraction of a half-frozen fetus from a manikin. Any one who has attempted such a delivery will appreciate the comparison. In this case the child was large, very muscular and well nourished, and we would naturally expect from such a condition that the rigidity would not have been so pronounced so soon after death. The rigor was in the second stage, and remained so during the next two hours while I remained.

It has been stated that if rigor mortis does occur in the fetus it in no way complicates the delivery. The cases of the writer, and also those reported by others, which I found in looking over the literature, prove the contrary to be the fact.

It will be noticed that my cases were at term, and it has been stated that rigor mortis does not occur in immature fetuses. Casper, in 1861, in Forensic Medicine, writes: "I have never observed a cadaveric stiffening in the immature fetus. Even in cases of mature newborn infants and little children, it is feeble and transitory." There is no reason why it can not occur even in premature fetuses, and that it does so we have a sufficient proof. Long before the viability of the fetus its muscles are in use.

In our reports of cases we find as a cause of death of the fetus conditions which I will summarize as follows: In thirteen labor was complicated by hemorrhage, viz: In four placenta previa, in eight accidental hemorrhage, in one varix. In two there was eclampsia, in five a contraction of the pelvis and rigidity of the cervix, in two there were twins, in one acute peritonitis, in one prolapse of the cord.

In five of the reported cases the labor was said to have been complicated by the extreme rigidity of the fetus. In a case reported by O. Feis the woman was a septipara in labor at term, with uterine hemorrhage; the head was born with a delay of the body; fetal movements were noticed eleven hours before birth. After a forcible delivery with unmistakable signs of rigidity of the body, which became more pliable, the rigidity returned, proving that the rigor mortis was in the early stage.

Granting that rigor mortis occurs in the fetus, the question might naturally be asked, How can the fact be explained that the condition is so seldom recognized? In answer to this I will say that often the fetus has gone through the rigid stage before birth; again, owing to the feebleness of the muscles, rendered so by disease of the mother or the fetus, the rigor is too feeble to attract the attention of the physician. Again, the fetus may be born before the rigor mortis commences. In this case the diagnosis of death has been made, and no further thought is given to it. Usually the death of the fetus occurs in the latter stage of the labor, and delivery soon follows, instrumentally or normally. Only in exceptional conditions will the physician look for rigor mortis. He should be able to diagnose it by stages; for instance, in the first stage the muscles appear somewhat stiff and waxy, and yet capable of motion. The myosin shows a jelly-like consistency and is still pliable. This is a stage which is likely to be overlooked. In this condition the joints may be moved and the muscles made soft, just as they would in the older body. Still they will return again to the rigid state. Should the birth occur during the first stage or be induced by an operative procedure the condition is not usually noticed; the physician naturally gives his attention to the living patient rather than to the dead child. L. Seitz, in the case reported above, calls attention to the fact that had he not made the inquiry regarding the stiff arm and general rigidity of the child, not one of the physicians

present would have noticed anything unusual, although the child was in a deep rigor.

The passage of the child through the birth canal may so soften the fetal musculature and joints and so alter the condition, even though it be one of advanced rigor mortis, that it may not again resume rigidity.

Cases have been reported where a physician is said to have practiced artificial respiration upon a child blue and rigid, with the fetal heart beating, although the child was dead and in rigor mortis. Griggs reports such a case, and while practicing artificial respiration, the upper extremities were in pronounced rigor mortis. It is said that mistakes in diagnosis of a dead fetus have been made because of the heart-beat. Brown-Séquard states that in moribund patients who have suffered protracted illnesses active rigor mortis occurs before the cessation of the heart's action. In the case of the fetus apparently born dead, it is not rare to detect the heart-beat for an indefinite period without any other sign of life. I have repeatedly heard the heart after the death of the child for a variable length of time; in one case, one hour and a quarter after the birth without a respiration. T. W. Engelmann has shown that the fetal heart has a great automatic musculature independent of its nerve ganglion, and that fetal hearts removed from the fetuses of animals will beat indefinitely. In the case of Opitz the heart beat two hours after pronounced death. Neugebaur reports ten cases of post-mortem heart-beat. L. Seitz and O. Feis both report cases where fetal heart-beat was heard in rigor mortis.

As a further proof that rigor mortis can and does occur in fetuses, we have the animal experiments by Tissot (*Recherches sur l' excitabilité des muscles rigides, Arch. de Phys. normale et path.*, 1894). These experiments prove conclusively that such a condition does exist.

My paper deals with a condition which usually results from a pathologic state, either in the mother or the fetus, which might or might not have been diagnosed had a clear conception of the physiology of pregnancy and the physiology of the fetus been known to the physician. I do not pretend to say that all pathologic states of pregnancy and labor can be recognized, but a higher consideration for the

value of fetal life will be the means of saving many children that would otherwise have been still-born.

From a medico-legal standpoint it must be admitted that rigor mortis can occur before birth as well as after. A case is cited of a woman tried for infanticide; because the infant was found in rigor mortis it was decided that the child had legally lived, and the woman was found guilty of murder. The existence of a newborn dead infant in rigor mortis is not necessarily a proof of a life apart from the mother, that is, of an independent existence. It does prove, however, that the fetus was alive shortly before or during birth.

In consideration of the foregoing facts and reports, I contend that post-mortem changes occur in the dead fetus as well as in the dead adult body, and that the condition in each is regulated by the same laws. Furthermore, that the condition often complicates delivery by interference with its normal mechanism.

Chicago, Ill.

THE DIURETIC VALUE OF SALT-SOLUTION ENEMATA, ESPECIALLY AFTER RENAL OPERATIONS.*

BY THOMAS R. BROWN, M. D.

A few years ago we published a short article on the specific gravity of the urine after salt-solution enemata (Johns Hopkins Hospital Reports, August, 1898). These experiments, ten in number, were designed to determine the effect of enemata of normal salt solution upon the specific gravity of urine, although approximately the same results would have been obtained undoubtedly if water had been used in place of salt solution. The method employed was as follows: The patient immediately after voiding urine was given 500 c.cm. of normal salt solution by rectum. The patient was not allowed to drink water or any other fluid during the next four hours, and during this period the urine passed was carefully collected. In some cases urine was voided but once, in other cases twice, but in them all between 250 and 400 c.cm. were voided (that is, between one half and four fifths of the quantity given by rectum), while the average specific gravity fell from 1.016 to 1.008.

These results demonstrate the marked diuretic value of salt-solution enemata, and suggests that it furnishes a valuable method of flushing

*Reported in the Maryland Medical Journal.

out the kidneys in conditions where such flushing out is of prime importance. Among the most important of such conditions may be mentioned after nephrectomy, nephrotomy and nephropexy; in fact, to a lesser extent all operations in which ether is the anesthetic are associated with a diminution in urinary secretions, and might, therefore, be regarded as cases favorable for the application of this treatment, although to a less extent.

As a result of these observations, it has been our custom at Dr. Kelly's private hospital to carry out the following regimen in all cases in which the kidney has been operated upon: One pint or more of normal salt solution is administered by rectum every six, eight, or twelve hours, according to the necessity of the case, for a number of days after operation. In the six cases of nephrectomy and the twelve or more of nephropexy in which this procedure has been carried out, the secretion of urine has been very free, very often even larger quantities than normal being passed during the days on which this procedure has been carried out. Besides this, it was noteworthy that the convalescence of these patients was much more comfortable than the usual run of renal patients, the nausea and headache especially being markedly diminished.

In other operative cases it is hardly necessary to give the enemata with such frequency, but one or more was always given even in the mildest cases.

The method is so simple, so absolutely free from unpleasant concomitants, and so easily carried out, that it would seem to us highly advisable that it should be incorporated among the essential procedures in the after-treatment of all cases operated upon under general anesthesia.

In the few cases in which nephrectomy was performed, and in which there was a marked diminution of urine before operation, often associated also with albumen and casts, coffee or infusion of digitalis was added to the enema on several occasions.

We realize, of course, that salt-solution enemata are used frequently in a sporadic way, but the object of this small contribution is to insist that great value can be obtained by its systematic use at frequent intervals, not only on cases in which the kidney has been operated upon, but also in all cases where ether, an anesthetic peculiarly irritating to the kidneys, has been used, and even in a large number of medical cases where it is essential to promote diuresis rapidly and effectively.

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THE FUTURE OF THE ROENTGEN RAYS.

This subject is one which is now occupying the minds of the practitioners of to-day, and one upon which much speculation is being entertained. Like all remedies in the past, when first introduced and found beneficial in selected cases, this great and new agent is being tried for almost all the ailments that flesh is heir to, and often, much to our surprise, has proven a cure in diseases we little expected it would benefit.

But, as all other things, it has its limitations, and we are fast coming to conclusions in regard to what is amenable to treatment and what not; these latter conclusions are based upon the immense clinical experience of those workers best capable of judging of its merits.

The expectations of many enthusiastic operators in this new field will doubtless never be realized, and we must be conservative in our judgment of its benefits. The experience of our leading men in this work seems to prove that the remedy is of real value as a therapeutic agent only in those diseases which are comparatively superficial, and we can expect little or no real improvement in deep-seated diseases, as cancer of stomach.

The most suitable cases for X-ray treatment are those of epithelioma of the skin, lupus, enlarged glands, both tubercular and Hodg-

kin's, certain types of eczema, removal of superfluous hairs, and many other superficial lesions amenable to this agent.

It is almost absurd to hope for good results in deep-seated organs, as the liver, stomach, and uterus. Some authors claim to have benefited this class, but their reports are not encouraging. Tuberculosis of the lungs or bones is also to be placed with those diseases not suitable for the rays. The property of the Roentgen rays as an analgesic is well known,and this latter quality is its only endorsement in certain hopeless cases.

We are safe in concluding at present that the Roentgen rays possess a certain anesthetic power, produce a local hyperemia, stimulate healthy tissues and destroy diseased ones. Their value as an aid in the diagnosis of dense bodies, as bones, bullets, etc., is too well appreciated to need mention, but there is still a great field open along the line of better diagnosis of heart and lung affections, and we hope and believe the future along this line will be its greatest benefit to mankind.

Current Surgical and Medical Selections.

Sarcomatosis Cutis.—In an article entitled "Sarcomatosis Cutis," read before the recent annual meeting of the American Dermatological Association and published in the Journal of Cutaneous Diseases (New York) for July, 1903, Dr. G. W. Wende, of Buffalo, gives the following conclusions:

1. Sarcomatosis cutis (Kaposi), which is now designated as sarcoid growths of the skin, is clinically recognized as having its own individual characteristics.

2. It chiefly attacks adults. The initial lesions are small papules deeply seated in the skin. These gradually develop to a certain size, when some break down, suppurate, and end in exuberant granulations.

3. Histologically it consists of a round-cell infiltration primarily existing in the deeper layers of the skin, around the blood-vessels, hair follicles, sebaceous glands, and lymphatic spaces. While this is suggestive of true sarcoma, it may present the inception of granuloma.

The etiology is at present obscure; apparently we have to do with an infectious disease.

4. While there is a strong resemblance microscopically to mycosis fungoides, the clinical appearance is so entirely different that one need not hesitate to exclude that affection from consideration, it being separate and

distinct from this. The theory of syphilis is contraindicated by the clinical appearance and therapeutic test. Lymphoderma and blastomycetic dermatitis are excluded by the microscopical findings. Carcinomatosis cutis is also ruled out by the microscope, although the clinical appearances in the two are very similar.

In the discussion Dr. J. A. Fordyce, of New York, said that the exact relationship to each other of the various affections included under the general name of sarcoma of the skin is not clearly defined. There seems to be transitional types between multiple sarcoma, mycosis fungoides, and leukemic skin tumors. Some of these diseases, like mycosis fungoides, are more closely related to the infectious granulomata than to the true connective tissue growths.

Dr. M. B. Hartzell, of Philadelphia, said that the sarcoma known to the surgeon differs very widely from the sarcoma of the dermatologist. The former type is usually rapidly progressive, while that of the dermatologist lasts for years and is comparatively benign. Many of the cases reported by dermatologists as sarcomatosis cutis last six, seven, even ten years, with very slight evidences of malignancy. On the contrary, the sarcomatous neoplasms of the surgeon not infrequently terminate the patient's life in less than a year. There is evidently a wide difference in the essential nature of the two growths.

Dr. T. C. Gilchrist, of Baltimore, said that in connection with this subject of sarcoma of the skin he had seen two or three cases of mycosis fungoides which had been mistaken by surgeons for sarcoma. Malignant overgrowth of moles is considered by many to be of a sarcomatous nature, whereas a number of observers, with whom he agreed, are of the opinion that they are carcinomatous. Of true sarcoma commencing in the skin he had never seen a case in Baltimore. Pathologists have often described cellular deposits in the skin as being sarcomatous, a diagnosis which dermatologists would not accept, because similar pictures are so often seen in benign affections of the skin.—*Medical Age.*

To the Members of the Medical Profession.—At a conference of the officers and Advisory Committee of the American Congress on Tuberculosis, held in New Orleans May 7th, some important changes were made in the plans as previously announced. The previous plans of the council to hold the congress in St. Louis in 1904 were changed, many considerations favoring Washington, D. C., as the place of meeting. A change of time of meeting was also made to April 4, 5, and 6, 1905.

As there is to be an International Congress on Tuberculosis at Paris in 1904, it was deemed possible that some foreign delegates might be prevented from attending the Washington meeting on that account. The plan and scope of the American Congress being in reality international, the postponement of the meeting to the spring of 1905 will give the management ample time for perfecting details upon which the success of a congress largely depends.

One committee has been already arranged to have charge of the Section on Pathology and Bacteriology, as follows: Dr. Simon Flexner, chairman; Dr. William H. Welch, Dr. George J. Adami, Dr. Thebald Smith, and Dr. F. F. Wesbrook. Committees in charge of other sections or departments will be announced later.

Dr. George Brown, of Atlanta, Ga., is practically the executive officer of the congress, and all who desire to present papers before the congress should apply to him. As there seems still to be a doubt in the minds of many physicians concerning the result of the vote of the New York meeting, which in 1902 adopted a new and definite plan for the next congress, we beg to assure our readers that the new plan is being followed in both letter and spirit by Dr. Brown and the other officers elected at that meeting.

Any circulars or communications purporting to be in the interest of the American Congress on Tuberculosis which do not appear over the name of Dr. George Brown, as Secretary, do not relate to the congress which was arranged last year, and the organization of which has already so far advanced as to insure its success from every point of view.

DANIEL LEWIS, M. D.,
President of the American Congress on Tuberculosis.

Special Notices.

MEMBRANOUS COMPLICATIONS (Throat, Bronchii, and Lungs.)—Under the above heading we find the following by Walter M. Fleming, A. M., M. D., New York City, in the September number of *The Medical Era*: "With all the experience of more than a quarter of a century in the treatment of winter cough and its complications of laryngeal, bronchial, and pulmonary irritability, also dyspnea, asthmatic spasms, and finally whooping cough—usually the most persistent and tenacious of all of these membranous maladies—I find no one remedy more strongly indicated, or which yields more prompt and satisfactory results, than Antikamnia and Heroin Tablets, composed of Antikamnia 5 grains and Heroin hydrochloride 1-12 grain. The purpose of this combination is manifest at once, for it provides primarily a respiratory stimulant, secondly a soothing sedative to the irritable mucous membrane, and thirdly an antipyretic and analgesic. Result: A prompt and efficient expectorant, which at once relaxes the harsh and rasping cough and releases the tenacious, sticky, and gelatinous mucus, while its soothing influence is at once manifested, greatly to the comfort and contentment of the patient.

DYSMENORRHEA.—Chief among the symptoms for which the patient seeks relief in this condition is the pain preceding or accompanying the menstrual flow. This pain is often of so agonizing a nature as to render her life unbearable and incapacitate her from all work. In these cases there may be present a displacement of the uterus, usually anteflexion, disease of the ovaries, uterus, or tubes. In many instances, however, no pathological lesion can be found, the pain being due to a neuralgic tendency or to hypersensitiveness of the ovarian and uterine nerves, which manifests itself by painful sensations during the menstrual period, owing to the congestion of the tissues at this time, and may be accompanied by cramps of the uterine muscles. In this class of patients Hayden's Viburnum Compound is especially applicable, producing a marked sedative effect, relieving the pain and uterine colic, and if its use is persisted in it will gradually remove the hyperesthetic state and effect a permanent cure. If the dysmenorrhea be due to uterine or ovarine disease, it will serve as a most valuable auxiliary to the local measures by helping to remove the existing congestion and overcoming any spasmodic element, thus greatly shortening the period of treatment.

SANMETTO IN URINARY IRRITABILITY IN THE AGED OF BOTH SEXES, IN ENURESIS IN CHILDREN, AND IN SEXUAL ATONY, ESPECIALLY THE SEXUAL AVERSION AMONG WOMEN WITH MAMMARY NON-DEVELOPMENT.—I have used Sanmetto extensively in my practice and am now prescribing it two or three times daily, and have to meet with the first disappointment in well-chosen cases. I use it with feelings of assurance in urinary irritability in the aged of both sexes; in enuresis in children, and in sexual atony, especially the sexual aversion among women with mammary non-development or mammary atrophy, because of nursing. Its action seems to be very remarkable upon the glands of the genito-urinary tract. Many cases of immature organs rapidly develop under its use, and the atonic condition of abused organs relieved. I like Sanmetto, and shall continue its use where indicated. JOHN D. NORTH, M. D.

Jackson, Mich.

I HAVE used Bromidia in cases of insomnia, restlessness, and threatened convulsions with surprising results, finding a dose of from fifteen drops to one drachm to be sufficient according to age and how often to be repeated. I have combiued Bromidia with Papine where I wished to annul pain with excessive nervousness, the combination acting very happily also in bladder troubles. I use Bromidia and Papine very much in my family.

Philadelphia, Pa. CHAS. E. QUETIL, M. D.

THE

AMERICAN PRACTITIONER AND NEWS.

"NEC TENUI PENNÂ."

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Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than any thing else.—RUSKIN.

Original Articles.

TREATMENT OF ASTHMA AND TUBERCULOSIS BY THE INTRAVENOUS USE OF THE FRALICK FLUID.*

BY FRANK C. WILSON, M. D.

Professor of Chest Diseases and Physical Diagnosis, Hospital College of Medicine, Louisville, Ky.

In October, 1902, I was consulted by an unmarried lady who complained of a troublesome cough and considerable muco-purulent expectoration. She had some elevation of temperature every afternoon, and had lost flesh and strength, though she had no night sweats.

A physical examination of the chest disclosed a small area of consolidation at the apex of the left lung, as evidenced by a slight dullness upon percussion, increased vocal fremitus and resonance; a few moist râles could also be detected upon auscultation. A microscopic examination of the sputum disclosed a few tubercular bacilli. The diagnosis was therefore made of incipient tuberculosis complicated with asthma, as her history showed that she had distinct recurring attacks or paroxysms of asthma.

As the diagnosis was clear and unmistakable, she readily consented to take the Fralick treatment. October 10th, twelve ounces of the Fralick fluid were given by infusion into a superficial vein in the forearm. No discomfort or pain was caused by its entrance into the circulation. On the second day after the infusion she left the infirmary and returned to her home. At intervals I received reports from her, detailing a steady improvement, lessened cough and expectoration, disap-

*Read before the Brashear Medical Society, Taylorsville, Ky., October 20, 1903.

pearance of fever, and gain in weight and strength; the appetite also increased, and she was sleeping well.

In April she presented herself again for examination. In examining her I found great difficulty in detecting at all the area of dullness at the apex of the left lung, there being only a very slight elevation of pitch of the percussion note. She had so little cough that I found I could scarcely secure enough expectoration to examine microscopically. In the examination I found no tubercular bacilli. I applied the tuberculin test in gradually increasing doses for three days without reaction. I then sent her home as cured. A recent report from her states that her steady improvement has continued, and furthermore, that she has not had a paroxysm of asthma since the intravenous infusion was given.

In order to test the efficiency of the intravenous infusion in the treatment of asthma, I selected at my chest clinic in the Hospital College of Medicine a very severe case, an old man who for many years past had suffered from nasal catarrh and frequently recurring asthmatic paroxysms. He was given fourteen ounces of the Fralick fluid. Now, two months later, he reports that while he still has a few paroxysms, they are much less frequent, lighter, and shorter in duration. In all probability another treatment will produce a complete cure.

How this result is brought about in the case of asthma is difficult to explain. The Fralick fluid, whose active ingredients are nascent chlorine and ozone, in a vehicle made to harmonize as nearly as possible with the normal blood serum, is a germicide of great power, being able to destroy the tubercular bacillus in thirty seconds and the anthrax bacillus in five minutes. Yet it can be injected into the circulation to the extent of twelve to sixteen ounces without creating disturbance. Whether in benefiting asthma it does so by destroying some hitherto undiscovered germ is a question. That it will destroy the tubercular bacillus whenever reached is indisputable. In the treatment of incipient tubercular cases, where only a small amount of lung is infected, a single infusion will often eradicate completely every trace of the disease. Where the disease is more advanced—a large area of the lung involved, the tissue broken down, and cavities formed—it can not be expected that a single infusion of the germicidal fluid thrown into the circulation will be able to penetrate every portion of the infected area; consequently, in the course of time, the undisturbed colonies will begin to multiply and spread and reinfect the neighboring tissues. The constitutional symptoms will return and the cough and expectoration

again increase. Just as soon as these symptoms manifest themselves a second infusion should be given, usually in three or four weeks; and this will be followed by a still more marked improvement than at the first. If this improvement steadily continues, it indicates that every portion of the infected area has at length been reached and all the bacilli destroyed; if not, a third, or even a fourth infusion, may be necessary. In this way, if each relapse is followed by a fresh infusion, even many of the more advanced cases may be cured, or at least life greatly prolonged.

If there is profuse expectoration teeming with tubercular bacilli, together with the streptococci, I follow the venous infusion with the inhalation of a combination of formaldehyde, eucalyptol, terebene, and carbolic acid in alcohol sufficient to make a clear mixture. This combination I have used for a number of years with marked benefit. I can recall one case where after an attack of pleuro-pneumonia, followed by a tubercular infection, the expectoration of a muco-purulent fluid averaged almost a pint each twenty-four hours. As a result of the frequent, deep inhalations of the combination above mentioned the expectoration in four or five days ceased almost entirely and the patient made a complete recovery, living for a number of years in good health and dying at last (quite recently) from other causes.

My experience with the intravenous method of treatment of tuberculosis leads me to the conclusion that in it we have a most valuable means of combating the disease, especially in its early stages, when it rarely if ever fails to cure. And here let me earnestly emphasize the paramount importance of the careful study of the earlier manifestations of tuberculosis, both physical and rational, so that in its most incipient stages it may be recognized and dealt with properly, actively, and judiciously. The failure to do this causes the loss of much valuable time, and often costs the patient long months, even years, of suffering, and most likely the final loss of life itself, for while the physician hesitates or makes a mistaken diagnosis and the patient is lulled into a false security, the germs are busily multiplying and sending out colonies until the insignificant point at first occupied by them has extended throughout the first and into the second lung.

I have been led to the study of the action of the Fralick fluid on asthma by observing it in cases where it appeared in conjunction with tuberculosis. Later, I tried it on cases where asthma without tuberculosis was evidenced, as in the case mentioned above. Thus far

results have gone to prove it equally efficient in the one as the other. Moreover, I believe there is still much undeveloped power in it; that in time a number of other diseases will possibly yield to its efficacy as a germicide.

LOUISVILLE.

TREATMENT OF MALARIAL FEVER.*

BY T. ATCHISON FRASER, M. D.

Ex-President Ohio Valley Medical Association.

While there are several varieties of malarial fever, and while this common disease manifests itself in various forms, yet the treatment of each variety is practically the same, and we all treat the disease according to the some well-formed principles, yet we should welcome the experience and advice of our fellow-practitioners and always be willing to lend a listening ear and a helping hand to each other. I do not know of a disease that is so frequently met with in this country as is the subject of this paper, and I feel that, on account of its prevalence, we are justified in saying that it is very important for us to thoroughly understand its treatment.

When we are called to the bedside of a patient while he is suffering from the chill it is our duty to administer remedies to relieve his discomfort, or to give him temporary relief before applying our rational therapeutics for the eradication of the poison from the system.

Several years ago I was in some way induced to give a patient pulverized capsicum during the paroxysm, and its effect was so satisfactory that since that time I as promptly administer capsicum during the chill as I give any other treatment.

I believe my first experience with capsicum was strictly empirical therapeutics; but, after a careful study of the drug, I am convinced that it is rational therapeutics. Also, if there is much epigastric pain and general discomfort, I give my patient a hypodermic injection of morphia sulphate. While some good practitioners condemn the use of morphia on the ground that it checks the secretions, I do not believe that one hypodermic of morphia will do any damage or interfere with the secretions to any appreciable extent. There is one thing we

*Read before the Crittenden County Medical Society.

should always bear in mind, and that is to make our patients as comfortable as possible.

Now the chill or cold stage has passed, and our patient has a temperature that is rendering him uncomfortable; what shall we do? My plan is to render him comfortable by bathing or cold packs, with the ice-cap to his head, and if there is nausea, I also apply an ice-cold towel to the throat, which rarely fails to give relief. I seldom give an antipyretic of any kind, as they are depressing and surely to some extent weaken our patient, and it is only a short time till the fever will remit as a natural consequence. If the bathing and ice-cap are judiciously applied they will as surely reduce the temperature as any antipyretic, and that without any depressing influence.

The bowels are usually constipated and should be thoroughly moved as early as possible, but I do not think it is of much consequence what we give for this purpose. I know it is customary to give calomel for this purpose, and this practice has been handed down from one generation to another from the time the good old doctors gave their patients calomel in teaspoonful doses and forbid them drinking water for a week, but never failed to produce ptyalism.

I believe that a dose of sulphate of magnesia is as efficient as any purgative we can give in malarial fever. Now the fever has receded and the bowels have been moved; what shall we do next? So many patients tell us that they can not take quinia, and sometimes almost convince us by their earnestness that they "just can't," that we are almost persuaded to "throw up our hands" and take them at their word.

We should cinchonize our patient at once. Just a few words in regard to idiosyncrasies; there are a few persons who can not take quinia, but out of the hundreds who have told me they could not take this drug I have found only one who really could not tolerate it in some form. If our patient does not know he is taking quinia, we can generally get him well under the influence of it before he will complain of its ill effects, and as it is absolutely necessary to cinchonize a patient suffering with malaria, we should lose no time listening to their "tale of woe."

If the stomach will tolerate it, I usually give quinia and powdered capsicum in capsules, say one grain of capsicum and four grains of quinia sulphate every three hours until twenty grains are taken, and then let him rest for eight or ten hours and repeat in the same manner

until another twenty grains are taken, then I withdraw it for twenty-four hours and repeat in the same way. Just here I wish to explain why I pin so much faith to the capsicum in combination with the quina. It is true that capsicum is only feebly antiperiodic, but it has the good effect of stimulating peristalsis, increasing the secretions of the stomach, and thereby promoting the absorption of the quinia.

Sometimes we find adults who will not swallow capsules; then I give them my children's prescription, say one drachm of quinia sulphate, one drachm tincture capsicum, incorporated in two ounces of syrup yerbasanta, and administer every three hours. Just here I wish to say that I consider syrup of yerbasanta the best excipient in which to administer quinia, and I seldom find a stomach so sensitive that it will not tolerate it.

Now, what is to be done if the stomach absolutely refuses to tolerate quinia? I give it hypodermically; and, as we can not see our patient every three or four hours to repeat the dose, I give a much larger dose than by the mouth.

My mode of administering quinia hypodermically is to dissolve say ten grains of the quinia with a few drops of dilute hydrochloric acid, then add a small quantity of pure water, and inject it as I would any other drug. In very grave cases of pernicious malaria I frequently give twenty grains and repeat in six hours if I do not get the desired effect, and I am in the habit of administering the drug fearlessly until I bring the temperature below normal. When the case is a desperate one I pay no attention to the hyperpyrexia.

Several years ago I was called to see a girl of seventeen, who had had a congestive chill, and found her with a temperature of 107° F., delirious, involuntary action of the bowels and kidneys, marked cyanosis, with cold feet and hands. I gave her twenty grains of quinia sulphate hypodermically, and repeated the dose in four hours, which reduced her temperature to $96\frac{3}{5}$° F. This patient made a speedy recovery.

Last April I saw a lady suffering from malarial fever who had been sick ten days, temperature ranging from 102° F. to 104° F., epigastric pain and sick stomach. Her physician said her stomach would not tolerate quinia, so I suggested that he administer it subcutaneously, and as he was not prepared to give it that morning the doctor called that evening and gave her ten grains, and repeated the dose next morning. Her temperature soon reached normal and did not rise again.

Our teachers of materia medica and therapeutics recommend the hydrochlorate of quinia for hypodermic use, as it is very soluble. I have given it, but not with the results I get from the sulphate. I have never had an abscess following a hypodermic injection of quinia, or anything else, nor do I believe there is danger of an abscess if we use a clean needle in a clean arm. I hardly know whether or not to claim originality for this mode of administering this drug. I do not remember having read of it, or getting it from mouth to ear.

There are other valuable remedies in the treatment of the latter stages of malarial fever to which I will only refer. The patient is usually anemic, and requires tonic treatment. The bitter tonics are very valuable in the latter stage of this disease, and a favorite prescription with me is tincture gentian compound and tincture calumba, equal parts given in drachm doses after meals.

I am also very fond of arsenic in the treatment of these cases, and prefer to give it with the tincture chloride of iron. A favorite prescription is

℞ Liq. pottassi arsenitis, ... ℥ss;
Tr. ferri chlor., ... ʒss;
Elix. arom. q.s., ... ℥ss.

This is very palatable and never produces nausea. It should be borne in mind that the aromatic elixir must be prepared from officinal oils, for if it is made from the fluid extracts it will contain tannin and precipitate the iron. As the treatment of this fever is an extensive subject, I have only attempted to go into detail upon what I consider the salient principles, and hope to bring out an edifying discussion.

Marion, Ky.

TETANUS IN NEWBORN INFANTS.*

BY R. B. GILBERT, M. D.

Professor Diseases of Children, Medical Department University of Louisville, and Visiting Physician to the Children's Ward, Louisville City Hospital.

Tetanus, or lock-jaw—the significant name given the disease by the laity—is one of the most dangerous and fatal diseases that human flesh is heir to. This is especially true when the disease occurs in the newly born infant, but fortunately, tetanus in this part of the country is not of very frequent occurrence. Statistics show that the greatest mortality from tetanus neonatorum occurs among the Southern negroes.

Some years ago Dr. Baldwin, of Montgomery, Ala., reported a large number of cases among negroes in that city. In one year, in New Orleans, there were two hundred and forty-nine deaths from tetanus in infants. In Cuba the disease is very disastrous—three hundred and sixty-nine deaths were reported in two years. In Jamaica 25 per cent of the negro infants die of it each year. Tetanus is also very prevalent and fatal in northern latitudes among the poorer classes.

Prior to the discovery of the tetanus bacillus, some fifteen years since, the etiology and pathology of the disease was puzzling indeed. The bacillus of tetanus is now definitely known, and is believed by most bacteriologists to have its natural home in the soil. The literature of tetanus shows conclusively that the bacilli of tetanus thrive best among the germs of putrefaction and in soil mixed with the excreta of horses.

The manner in which the bacillus of tetanus invades the system is not always the same. In the adult it is usually admitted at the seat of some injury about the hands or feet, which are usually dirty. Many cases of tetanus occur among laborers about stables. The injuries caused by the accidental explosion of toy pistols, as lacerations and powder-burns about the dirty hands, are quite frequently followed by fatal attacks of tetanus. Several fatalities from tetanus are annually reported in our own city of Louisville after each recurrence of the Christmas and Fourth of July celebrations.

The popular opinion is that the bacillus of tetanus, in the newborn infant, enters the system at the umbilicus. In most instances per-

*Read before the Brashear Medical Society, October 20, 1903.

haps this is the case, but a lacerated or wounded surface may be the gateway of infection. Many observers have reported cases of fatal tetanus in which the autopsy revealed no perceptible lesion at the umbilicus, or in the umbilical vessels, to account for the disease. By whatever route the bacillus of tetanus invades the system the symptoms and pathology of the disease are practically the same, and it usually terminates in death.

Dr. H. O. Wooten, in an article published in the New Orleans Medical Journal, says that he has "never seen a decided case of tetanus neonatorum that did not prove fatal." Dr. J. Lewis Smith, of New York City, reported only eight recoveries in forty cases under his care.

In my own collection of fourteen cases, all excepting two have died. The two successful cases occurred within a few weeks of each other during the past summer. A brief report of these cases may be of interest.

Case No. I, June 9, 1903. Infant of Mrs. B—, a well-to-do family living in the cleanest part of the city of Louisville, on the third day after birth suddenly developed a temperature of 104° F., and refused the breast absolutely. On attempting to force milk or water into its mouth with a spoon its little jaws were firmly closed together and its whole muscular system was thrown into rigid contraction; even the muscles of the face were tightly drawn, greatly distorting the features. The skin rapidly became decidedly jaundiced—a typical case of tetanus neonatorum.

Appearing thus suddenly and unexpectedly in an infant that had been born naturally, and of course there was no trauma—the external appearance of the umbilicus was perfectly normal and dry—how the bacillus of tetanus got into this case, or from whence it came, remains a mystery. Just how I should treat the case did not seem clear to me, in view of the fact that all my cases of that kind previously had died—unlike old Sangrado, when Gil Blas advised that they change their plan of treatment, since all their patients died. Sangrado, you remember, replied: "No, sir; I have written a book advising this treatment, and we must continue it." I determined to try a change from the old plans laid down in the books, and the change was a very simple one, based, as I believe, upon a practical idea, viz., that of free elimination by the bowels and kidneys. The antitoxin serum treatment suggested itself, but I had recently seen several cases unsuccessfully treated in

that way at the City Hospital, and I could not think of trying it in this case.

After relaxing the spasmodic muscular contractions by a few inhalations of chloroform, I proceeded to irrigate the colon with a warm (105° F.) saline solution, sixty grains common salt to the pint of water, using a No. 20 soft rubber catheter and fountain syringe, using one pint of the solution thrown high up into the colon so as to distend the whole of the large intestine, flushing it out thoroughly. The temperature within an hour dropped to 101° F., and the tetanoid movements were very much lessened. Internally we gave, in solution, three grains potas. bromide and two grains chloral hydrate at a dose, repeated every three hours. No attempt was made to feed the infant on milk for thirty-six hours. The nurse was instructed to give it half an ounce of warm sterilized water every hour. Of course there was much watery fluid returned by the bowels, and there was also a greatly increased amount of urine passed, which was slightly tinged with bile. The saline irrigations of the colon were repeated every six hours, and the medicine repeated every three hours for about forty-eight hours. At the end of that time the infant had greatly improved and resumed nursing and went on uninterruptedly and made a good recovery.

Case No. II, August 2, 1903. Infant of Mrs. S—, wife of a German mechanic, living in the suburban cottage district, surroundings healthful and clean. Labor was induced at the seventh month on account of contracted pelvis. Forceps used, and there was a slight abrasion of scalp over right parietal bone, which was covered in twenty-four hours by a dry crust; no pus formed at this abrasion. Umbilicus dressed dry and soon became thoroughly dessicated, dropping off on the fifth day, leaving a healthy cicatrix.

On the seventh day tetanus began suddenly, and in almost every particular the case was similar to the one described above. The same treatment was used, viz., saline irrigations every six hours, and bromide and chloral every three hours, which was followed by recovery after three or four days.

In these cases I believe the infection was in the umbilical vein, where it traverses the longitudinal fissure of the liver, and where the blood comes to a standstill after the separation of the umbilical cord and is slowly absorbed. A similar condition exists in the hypogastric arteries; the blood in those vessels is slowly pushed on into the circulation, probably by the contraction of the walls of the vessels, but a

small portion of it remains, and being modified, becomes a favorable nidus for the propagation of the tetanus bacillus or other bacilli.

The eliminative and palliative treatment administered seemed to meet the indications in these cases, and the result was so satisfactory that I shall certainly repeat the treatment if occasion should again present itself.

LOUISVILLE.

TRANSMISSIBILITY OF DISEASES OF ANIMALS TO ANIMALS OF OTHER SPECIES.*

BY GEO. T. M'WHORTER, M. D.

Junior Councilor, M. A. S. A.

The above caption of course includes the transmissibility of diseases of animals to man, the most highly differentiated of all animals.

To what extent the lower animals are a source of danger to man as originators or carriers of disease is a highly interesting and important question. Whether the answer, in any given case, be positive or negative, it is essential that it be clear and unequivocal. Next to knowing what diseases of animals are a source of danger to man, we are interested in knowing what diseases are not.

The etiology of disease has always been the most important as well as the most intricate and perplexing question with which the medical investigator has had to deal.

Before the age of careful observation and exact methods—the age of the microscope and the laboratory, of the chemical test and the mathematical count—the most fantastic and diverse views, ranging from witchcraft and diabolism on the one hand to cosmic influences on the other, were freely held and most ably expounded. As opinions based upon carefully conducted experiments were rare, no one knew with certainty when he diverged from the straight path of truth and wandered out upon the devious paths of error.

But the paramount question: Whence comes the disease, and more particularly, by what route did it reach us? remained to a large extent unanswered. With the advent of more careful and rational methods came fuller and immensely more practical results. One by one the great questions of etiology are being answered with a clearness that

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leaves no room for doubt, and a simplicity that makes the far-fetched conclusions and tedious polemics of other days seem puerile in the extreme. And when the answer comes in each individual case it generally is that the disease in question originated with an individual of the same species as the subject who was suffering or had suffered with a similar infection. In other words, men infect men, either directly or through the agency of some parasitic intermediary, while animals infect animals of like species, and in the same direct or circuitous manner. The influence of species at once asserts itself. It becomes apparent that those generic and specific differences which nature has gradually interposed between different families of animals is a chasm so broad and deep as not only to prohibit entirely the mixing of species, but to modify profoundly those germs of disease which attempt to pass the natural barrier. The precise influence which will be exercised by this great barrier of species, in any given case, is the most mysterious and incomprehensible thing to be met with in the whole study of disease. In what manner it will assert itself can not be determined in advance.

Whether it will permit the disease to be communicated to an animal of alien species with undiminished virulence, as in the case of rabies canina; whether it will interpose a barrier as absolute as that which prevents the mixing of species, as in the case of Texas cattle fever; whether it will render a severe disease mild and protective, as in the case of vaccinia communicated to man; or a disease which proves mild and protective when communicated directly, to become deadly in the extreme when communicated through the agency of a third species, as in the case of human tuberculosis communicated directly to cattle, or intermediately through the goat, are questions which can be answered only by experiment and observation in each particular case.

In a great number of instances, however, the barrier of species seems to be a bar to the spread of infectious diseases. To this rule there are some notable exceptions.

The facility with which rabies canina may be communicated by direct inoculation to almost every species of animal, as well as to man, is justly responsible for the fear we feel of this formidable disease. No other disease of dumb brutes has so powerfully affected the imaginations of men or aroused fears so vivid.

Anthrax, primarily a disease of the sheep or ox, has been a scourge to domesticated animals since the dawn of history. It was a plague of

the cattle of Egypt in the time of Moses, and prevailed in Asia Minor when the Greeks were engaged in the siege of Troy. It is readily communicated to man and to animals with a blood temperature approximately that of the species in which it originates. In 1617 a number of human beings died at Naples, Italy, from eating the flesh of animals infected with the disease.

In 1864, in five departments in Russia, 10,000 horses and 1,000 persons perished from the disease. Nature, however, does not completely throw down the protective barrier of species to this scourge of the herbivora. In a great majority of cases the disease in man is only local, lacking the gravity of the constitutional form as developed in the ruminants. The hot-blooded class, birds, and the cold-blooded class, reptiles, are alike immune.

It is a curious fact, however, that the disease, with typical symptoms, may be developed in birds by soaking them in cold water until their normal temperature of 104° is reduced to 100° or under before inoculation; and in frogs by keeping them in warm water until their temperature rises to 96° or 98°. This experiment throws light upon the manner in which a sudden heating or chilling of the human body may favor the onset of an infectious disease.

Glanders, a contagious constitutional disease of the genus equus, is one of the oldest diseases of which we have any knowledge. Dr. Hindekoper says that this disease was accurately described by Absyrtus, the Greek veterinarian in the army of Constantine the Great. It is readily communicable to man as well as to sheep, goats, dogs, cats, rabbits, and guinea pigs.

In man the disease may remain a local one, as it usually does in the dog, or it may spread to the entire system, developing extensive ulcers and hemorrhages and causing great destruction of lung tissue, in which case the condition of the wretched mortal is pitiable indeed. He may be denied the relief of speedy death vouchsafed the victim of hydrophobia. The usual manner of spread of the disease is by inoculation of an abraded surface of the skin or mucous membrane.

Horned cattle, so subject to anthrax, are absolutely exempt from attacks of glanders. Their systems show complete resistance, whether the virus be administered by the digestive tract or by inoculation. "Thus far and no farther" is the merciful edict of nature when the infection of glanders reaches the borderland of the bovine family.

While all three of the diseases above mentioned are readily communicable to man, as well as to a great number of animals, deaths of human beings from them are not numerous.

The correct knowledge we have of the character of these diseases largely averts the danger from these sources. Owing to the ferocity of the rabid dog, and the incurable character of the malady, deaths from hydrophobia sometimes occur, but fortunately most of us have never witnessed one. It is highly probable that deaths of human beings from rabies, glanders, and anthrax combined would make but an inconsiderable fraction of one per cent in the general tables of mortality.

If these diseases of animals which are readily transmissible cut so small a figure in the general death-rate, how is it with those diseases of animals that are transmitted only with the utmost difficulty or not at all?

This question could be more clearly answered if we were always satisfied when we have in man the exact counterpart of a disease of an animal. But we can not always be positive.

Some years ago the writer of this essay read a paper before the Colbert County Medical Society calling attention to eighteen points of analogy between yellow fever in the human subject and Texas fever in cattle. This paper was published in The Alabama Medical and Surgical Age, edited by Dr. Legrande. Since that time two more analogies, so striking as to arrest the attention of the most careless, have been brought to light by the careful researches of Stiles and Smith as to the nature of Texas fever, and the investigations of Finlay, Reed, Carroll, and Agramonte as to the method of distribution of yellow fever. First, the communication of both these diseases, from individual to individual, is effected through the agency of a parasitic intermediary, the parasite, in the case of Texas fever, being the *Boophilus Bovis*, or cattle tick, and that in the case of yellow fever being the stegomyia fasciata mosquito. The other analogy, though of a negative character, is very significant. The protozoon which undoubtedly causes Texas fever, and very probably causes yellow fever, has never been cultivated according to bacteriological methods, and in all probability never will be.

With analogies so numerous and so striking, are we justified in assuming that in Texas fever in cattle we have the analogue of yellow fever in man? I do not know. It is probable, however, that a systematic writer on botany or zoölogy, finding so many points of resem-

blance between two plants or two animals, would place them in the same genus, and perhaps in the same species. Whether these diseases be identical, either in origin or phenomena, or not, it is reasonably certain that Texas fever, the greatest scourge of the bovine family in the Western Hemisphere, is never communicated by cattle to man. In the presence of a case of hematuria, now known to be caused by a parasite which infects the red blood corpuscles at a time when "bloody murrain" was prevailing among the cattle, I have been not without apprehension that the parasite of cattle fever had succeeded in some mysterious way in bridging the mighty gulf that separates the primate from the ruminate; but the carefully conducted tests of competent experimentors, and the observations of persons who have had large experience with cattle fever, convince me that my fears were chimerical. Dr. Theobold Smith, Chief of the Division of Animal Pathology, made repeated and unsuccessful efforts to communicate the disease to rabbits, pigeons, and guinea pigs, by injecting into their veins blood taken from the veins of the cows fatally sick with the disease. As he persisted in these efforts until he had injected three hundred times the quantity, relative to body weight of the animals, required to produce the disease in the cow, without harm to the little animals, we may fairly conclude that they are immune. With a cloven-hoofed ruminant so closely related to the cow as is the sheep, there were grounds for thinking that direct inoculation would induce the disease, but his failure where lambs were the subject of experiment was as complete as when rabbits, pigeons, and guinea pigs were used. Would he have failed if cattle ticks, the natural carriers of Texas fever, had been used, instead of the hypodermic syringe, in his efforts to spread the infection? I think so. Undoubtedly great numbers of animals, as well as scores of persons who live in country places, are annually bitten by cattle ticks in their larvæ or "seed-tick" stage, when they are especially dangerous. It is hard for city dwellers to realize how difficult it is to avoid the little pests when walking along a forest path or through an infected pasture. A bovophile in sentiment, the cattle tick is cosmopolitan in his tastes, and anthropophagus in his giddy youth. His failure to communicate the disease to man is not due to any failure on his part to "sink on his claim" as soon as it is "staked out." In no case have I found that any serious consequences to persons resulted from the bites of these ticks. On the contrary, their bites seem to be as harmless to man as are the bites of the African

tsete fly, which in like manner convey a deadly disease to animals of the equine and bovine families. In these cases we have a striking instance of the protective influence of the great generic barrier. In view of the failure to convey the disease by direct inoculation to closely related animals, and the failure to communicate the disease to man by the identical and only agency by which it is conveyed to cattle (the cattle tick), we conclude that Texas fever in cattle is not a source of danger to man. The statement that cattle ticks are practically the only source of infection to cattle is made advisedly. The idea of unity in the genesis of disease is taking strong hold upon the minds of all who have given the subject careful attention. When we have demonstrated one source of infection, and one route by which the infection has undoubtedly reached us, we have taken a long step toward demonstrating the only possible source of infection, and the only possible route by which it can come. The cases of yellow fever not caused by the stegomyia mosquito, and of the Texas fever not caused by the cattle tick, are a negligible quantity.

Swine Plague. Swine plague is a very fatal disease of the hog, which, according to Dr. Detneers, may be communicated to mammals of any species, but not to birds. Great numbers of rats are known to die before the development of the disease among hogs, just as they do before the outbreak of bubonic plague in man. A medical friend of the writer, who is a close observer, attributed the deaths among his hogs to their having eaten the carcasses of the dead rats that lay under the cribs and about the horse lots.

Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, whose attention was called to this fact, writes under date of April 8, 1903: "Careful consideration has been given to the possibility of this disease being transmitted by small animals and insects of a parasitic character. At the present time we do not feel warranted in expressing a positive opinion in regard to this matter."

There is no evidence to show that the disease has ever been communicated to man either by eating the flesh of infected animals or by the bites of fleas which infect the rats and hogs. Notwithstanding this, the fact that the fleas which infect hogs are no respecters of persons renders them a source of possible danger during the prevalence of swine plague. In the absence of positive evidence it is not possible to say whether the human system will or will not resist a given infection.

The recent outbreak of bubonic plague at Mazatlan, Mexico, makes a reference to this terror of the East timely and appropriate.

The investigations of Kitasato, Yersin, and others, leave little room for doubt that this disease, probably of telluric origin, is conveyed to man by the bites of fleas which have previously bitten infected rats. Yamagiwa found a wound on the surface of one in every seven cases examined. The fact that the rats die in vast numbers before the outbreak of the disease in man makes it exceedingly probable that they introduce the disease, while the fact that the blood of the flea is found infected with the bacillus of Kitasato renders it reasonably certain that they are the final medium through which the disease reaches man. The chance of infection from flies and bed-bugs is not to be altogether overlooked, but the danger from these sources is probably slight as compared to the danger from infected fleas. Laboratory cultures of the bacillus of plague are pathogenic to most small animals, but are perfectly harmless to pigeons. The ovian blood, six degrees warmer than the blood of man, refuses to receive the infection.

Venoms. The varying susceptibility of poisonous serpents to the venom of their own and of alien species is a curious and interesting phenomenon. It has long been known that the bile of poisonous snakes, owing probably to some antitoxin generated in the system of the animal, is a powerful antidote to the venom of serpents of the same species.

Fraser has recently discovered that this protective influence of the bile was almost completely lost when employed to combat the venom of a snake of a different species. The bile of a rattlesnake, while highly protective against the venom of a rattlesnake, has scarcely any protective influence whatever against the venom of the cobra. Dr. Lamb, of the India Medical Service, says that the poisonous principles of all snake venoms are albuminous substances, which vary greatly with the species of the snakes.

Not a single poisonous principle of the daboia venom is found in the venom of the cobra.

In these cases nature, while arming the serpent fully against his ophidian enemies, as well as all other species of animals, seems to have furnished him a measurable protection against the dangerous principle which he uses with such deadly effect.

The most formidable disease common to man and to the lower animals is tuberculosis. A medical audience does not need to be told of

the frightful ravages of this disease in the ranks of the human family. By a recent official utterance of the German Chancellor we learn that deaths from this disease in Hesse-Cassel and Bavaria reached the fearful aggregate of forty-four per cent of the deaths from all causes combined. Nearly half the people of these German provinces are doomed to die from the assaults of this deadliest pathologic enemy of the human race.

Though vast numbers of cattle succumb every year to the ravages of this disease, the death-rate is probably much less with them than with men.

Is the bacillus of bovine tuberculosis identical with that which causes the disease in man? Koch, Schlitz, and many other careful investigators think that these germs differ specifically, while Behring, who formerly held this view, now holds that they are identical, and that the differences, which he once regarded as specific, are merely labile. Desweinitz asserts that they are identical or very closely related. Preponderance of evidence favors a specific difference. Analogy with some other diseases of men and animals, which are called by the same names, favors this view. For example: We know that men, and quite a number of animals of diverse species, suffer from uncinariasis; yet the two species of parasites found in man are never found in animals, and conversely, the parasites found in animals have never been found in man. Careful study has demonstrated that each species of animals has a particular species of parasite, which induces a disease not to be distinguished from uncinariasis as it appears in animals of a different species. It is quite conceivable that the change of environment which occurs when the parasite develops in a new host, might induce great modifications of specific character. Quite unexpectedly it was found that the uncinaria Americana, found in the intestines of persons suffering from the disease in the Western Hemisphere, was specifically different from the uncinaria duodenalis found in the intestines of Europeans and Asiatics sick with the disease.

Systematists make different species of parasites as they occur in the intestines of the dog, the fox, the sheep, the cow, and in seal pups, yet the diagnosis of uncinariasis is easy and certain in any case. The possibilities of a similar state of affairs, not so fully worked out, must be borne in mind in considering the identity or non-identity of the bacillus of tuberculosis as it appears in man and in the lower animals.

Fraught with more far-reaching consequences is the question: Is bovine tuberculosis communicable to man? Owing to the transcendent importance of the question, a brief synopsis of the views of leading authorities on the subject is deemed justifiable.

Koch, who startled the scientific world a year or two ago by boldly declaring that bovine tuberculosis is not transmissible to man, still holds to the view he then announced. He declared before the Tuberculosis Conference of 1902 that not a single case of the supposed communication of the disease to man would bear criticism. Schutz coincides fully with Koch in this opinion. Behring, in a series of experiments extending over five years, has shown that injections of human tubercle bacilli had no harmful effect whatever upon cattle, but protected them in a remarkable manner from bovine tuberculosis. Owing to this protection he styled the process "Jennerization." The protection seemed to be complete, as shown by many experiments, to the details of which I will not refer. The process of "Jennerization" promises to attain great economic importance.

In this country Pearson and Gilliland have repeated the experiments of Behring with exactly similar results, all the cattle "Jennerized" being completely protected, and but little constitutional disturbance resulting from the process. They are still prosecuting their investigations.

Kinsman and Murray review the literature of the subject available, and conclude that we can not safely omit any precaution against the spread of the bovine infection.

Hamilton criticises Koch and Schutz for what he deems their too radical views, and asserts that a local or glandular disease may be induced in persons by injections of tuberculous material of animal origin. Baumgarten injected cancer subjects with bovine tubercle bacilli. His results were negative.

Garnault has had excised the small tumor on his arm, caused by inoculating himself with cultures of bovine tubercle bacilli, and claims that his experiment was successful, as guinea pigs inoculated from the tumor on his arm were fatally infected. His own health continued excellent. Owing to limited space I shall not attempt to introduce further evidenee as to the transmissibility of bovine tuberculosis to man or to consider any of the other diseases to which men and animals are alike subject. While the question of transmissibility of bovine tuberculosis to man is still sub judice, the evidence nearly all points in one direction, and that is that the disease is not communicable, in any harmful sense, to man. Immense therapeutic possibilities lurk in the possible fact that the artificially induced disease may exert a protective or curative influence on man.

The mere mention of the name of Jenner recalls the incalculable blessing conferred upon the human race by the artificial propagation of a disease of the cow. If the converse of Behring's discovery is shown to be true—that is, if it be shown that man is not seriously harmed by inoculations of bovine tubercle, but is completely protected from consumption, the pathological "*hostis gentes humanis*"—what an epoch-making event would the experiments at Marbourg prove to be! How the acclaims of 300,000,000 of the redeemed of our race would echo around the world!

We must not be too sanguine, however, on this or any other subject relating to the prophylaxis of disease. Like the Law-giver upon the mountain top, it may be vouchsafed us only to cast our eyes over the promised land of complete immunity from the great white scourge, and then be compelled to wander and die in the wilderness of error and uncertainty.

Nor must we, on the other hand, lose heart or abandon hope at the apparently slow progress made. "Science moves, but slowly, slowly, creeping on from point to point."

Every great discovery in medicine has been preceded by a period of ignorance or partial information. The era of conjecture, of hypothesis, of experiment, and of observation must of necessity precede the era of knowledge. Only error springs full-fledged into existence.

The domain of disease is a terra incognita in which the explorer walks with uncertain footsteps. Every foot of the territory may need to be "prospected" by the pick of science before the ore of truth lies uncovered. Yet, little by little, additions are made to the sum of our knowledge of disease. One by one facts relating to origin and methods of distribution are gathered, scanned, and co-ordinated. Finally some genius of discovery—some Harvey or Jenner—steps upon the scene, and surveying the whole field, grasps the true secret to which all the phenomena had in vain been pointing for ages!

Then, like a Marconigram flashing across the dark sea of human sufferings, comes the tidings that another plague has been stayed—another shackle stricken from the limbs of mankind.

In that hour of triumph the humblest worker who has contributed his mite to bring about the result has his reward.

The medical investigator who labors for truth and humanity must not seek to dazzle the public by the announcement of startling and unconfirmed discoveries. Science does not permit her votaries to "play

to the galleries." Working quietly and unobtrusively, he must imitate those vast and imponderable forces of Nature which change the physical aspects of a continent without the knowledge of the inhabitants thereof.

Such a course only is in harmony with the results of his labors, which in dignity and importance have no parallel in other fields of human effort. In the age-long conflict with disease he must welcome the assistance of his animal allies. It is the heterolysin, a product of the blood of an alien species, which must be relied on to place the science of immunization on a firm foundation. The ablest member of this Association will be better equipped for his work by a certain degree of attention to the ailments of his humble fellow-creatures, the dumb animals.

Like Saul, of the olden time, who went out in the morning to seek his father's asses and found a kingdom, the excursionist into the domain of animal pathology may return bringing in his hands the guerdon of health and happiness to suffering humanity.

The following conclusions are submitted:

1. Certain diseases of animals are transmitted from species to species without diminution of virulence. Animal life being held cheap, the sources of infection in these cases are promptly extirpated, and the sum total of human deaths from them is not very great.

2. Other diseases of animals, such as vaccinia, are, when communicated to man, mild in character and protective in influence, as are certain diseases of man when communicated to animals.

3. A number of diseases of animals are transmissible to animals of other species only with the utmost difficulty or not at all.

4. The parasitic carriers of disease may be able to infect only that species of animals from which they received the infection.

5. Species is a great and but little understood factor in the distribution of disease.

6. Heterolysius rather than autolysius or isolysius must be largely relied on in the science of immunization.

Riverton, Ala.

SYPHILIS AS A CAUSE OF CHOREA.*

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Like most of the so-called functional neuroses, chorea is notorious for the multiplicity of its causes and remedies. One would expect this after a moment's consideration of the name and symptomatology of the disease. The effort to establish chorea as a "definite, substantive affection" (Osler), or as a "distinct malady, showing varying degrees of permanence and intensity" (Dana), is far from being entirely satisfactory. The enumeration of such diverse etiological influences as fright, peripheral reflex irritation, and infectious blood states toward the production of a definite, uniform affection is, to say the least, somewhat anomalous. Hence there is ground for the contention that under the name of chorea many varied conditions have hitherto been discussed. This is particularly obvious after a careful comparison of the minor and major choreas, Huntingdon's and Friedreich's diseases, the hysterical and electric choreas, the various tics and symptomatic choreas. Between all these affections there is only an apparent similarity in regard to the muscular jactitations.

The term *chorea* literally means a dance, and, as applied to the irregular, inco-ordinated, jerking movements of the voluntary muscles, indicates a mere symptom rather than a disease. As a symptom it reveals a functional disturbance of the higher or volitional or inhibitory motor neurons, which disturbance, on account of its functional character, may be the result of various irritative causes. The probability of this assertion rests upon many facts, chief of which is that there are no constant pathological findings.

Some authors made a distinction between symptomatic or organic chorea and ordinary chorea, meaning by the former the choreiform movements produced by gross organic lesions, and by the latter Sydenham's disease. Such distinctions, however, lead to confusion and contradiction. Dana, for instance, like most writers, distinguishes between symptomatic and ordinary chorea, and then for the latter assigns such pathological changes as "intense hyperemia, with dilatation of vessels, small hemorrhages, and spots of softening," which, acting as "points of

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irritation in the cortex and its meninges and in the deeper parts, excites irregular discharges of nerve force and produces the choreic movements." If this is not symptomatic and organic as truly as the chorea due to any other form of gross lesion, I do not understand the meaning of the term symptomatic. As a matter of fact, all choreiform movements are symptomatic, and the differences in their character are due to the differences in the character and location of the irritative lesion. So far as being a symptomatic disease, acute minor chorea is as dependent upon a physical basis as any of the other forms of chorea. The nature of this physical basis may not be entirely clear, but that it is molecular, chemical, bacteriological, or even minutely organic can hardly be doubted.

Among the causes of acute minor chorea, the infections play a large role. The authorities enumerate rheumatism, pneumonia, scarlet fever, gonorrhea, puerperal fever, typhoid fever, pyemia, and septicemia. That functional or organic changes of some sort are instituted by these various infections goes without saying, and argues for the symptomatic nature of even Sydenham's disease. Osler remarks that the "prominent psychical element is certainly one of the most serious objections" to the infectious theory of the origin of the disease, "since there can be no doubt that ordinary chorea may rapidly follow a fright or a sudden emotion."

The objection would be a valid one if chorea minor were a "definite, substantive affection," and not merely a symptomatic trouble.

Among the infectious causes of the choreiform phenomenon, syphilis is rarely mentioned, either in the books or in the current literature. Moreover, a search through the literature has rewarded me with the reports of but a small number of cases of syphilitic chorea. To this number I will add another case.

Under the title "Some Cases of Syphilitic Chorea," Robert H. Alison stated in The American Journal of the Medical Sciences for July, 1877, that "Chorea due to syphilitic disease of the nevous centers is so rare that up to this time, after an extended research, I have been able to find only two cases recorded." Of these two cases, one was unilateral, the other generalized. To these two cases Alison contributed two more, both unilateral, from the private notes of Weir Mitchell and the records of the infirmary. The case of generalized chorea was reported by Zambaco as Obs. 76 in his *Affections Nerveuses Syphilitiques*. It occurred in a seamstress, aged twenty years. The

jactitations appeared after the syphilitic infection, and before the appearance of the eruption. A cure was accomplished in five months. Anent these four cases, Alison remarked that spasm of the vessels and altered molecular states of nerve tissue would not explain them. There was doubtless, he says, a positive lesion, probably vascular occlusion of the minute vessels of the corpus striatum and neighborhood. This would seem more likely to be true of the unilateral cases than of the generalized one. Such cases bear to general chorea a relationship somewhat like what monoplegia bears to general functional paralysis, or what Jacksonian epilepsy bears to idiopathic epilepsy. It is difficult to imagine what sort of a "positive lesion," unless we include toxemia and some of its immediate results in that category, could provoke a generalized chorea. This difficulty is still greater in connection with those choreas which seem to depend upon inherited syphilis. Syphilitic arteritis and meningitis are positive lesions of a generalized character, dependent primarily, however, upon a generalized cause—the toxic state of the blood.

Two cases of chorea associated with congenial syphilis are reported in the "London Letter" of the Philadelphia Medical Times of April 14, 1877. One of the cases was that of a boy, aged seven years, with hemichorea. The other, his sister, aged twelve years, was a case of bilateral chorea. Both cases exhibited unmistakable signs of inherited syphilis, and both were promptly cured of the choreiform attack by the use of antisyphilitic medication.

Rare as syphilitic chorea is, I feel quite sure that it is not so rare as to justify the almost total absence of all allusion to it in the works upon neurology, syphilis, and general practice. Instead of occupying your time with the long list of such works that I have consulted, I will endeavor to fill it more profitably by reporting a case of chorea in a congenital syphilitic which I was asked to see by Dr. S. L. McCreight, and by whose kindness I am permitted thus to bring before you:

H. P., male, aged eleven years, born at full term, of German parentage, and showing at present unmistakable signs of inherited syphilis.

The family history is noteworthy. The father of the lad, now about forty years of age, married some fourteen years, admitted to his wife and earlier physicians that he had contracted syphilis about ten years prior to his marriage. Nine years ago he experienced his first apoplectic attack, which involved the entire left side of his body and for a brief period his speech. The paralysis lasted twenty-eight weeks and

then disappeared almost completely. A second stroke occurred five years ago, involving the same side. This attack was preceded by several spells of weakness, largely in the same extremities. This second attack lasted about two weeks. At this time he was blind for several weeks, but his eyesight underwent partial recovery. Maniacal attacks also took place, and the man was admitted into the County and Dunning Hospitals. These periodical attacks of mania, with intervening spells of quiet foolishness, lasted for some time, finally passing into dementia. At the present moment he is living at home, a sad picture of irresponsible, harmless dementia with paresis.

The mother of our patient is an exceptionally bright, active woman, without the slightest evidence of syphilitic taint. She denies having had any miscarriages. There are four living children, all of whom show more or less positive signs of syphilis. The eldest is twelve years of age; has been obliged to wear glasses since she was five years of age; is the victim of excruciating headache; exhibits every now and then a severe eruption of the skin; and suffers almost constantly from a sore throat. Mentally she is above the average, and stands always at the head of her class in school. She has chronic nasal catarrh.

The second child is our patient.

The third child is not quite ten years of age; has marked ozena; suffers from frequent skin eruptions; exhibits the Hutchinson teeth, and is the victim of frequent attacks of sore throat. Seven years ago an ulcer-like eruption broke out behind the ear and spread around the neck to the back of the head.

The fourth child is five years of age; suffers from ozena, skin eruptions, sore throat, and troublesome diarrhea.

Let us return, now, to our patient, the second child. He appeared to be healthy until he was about two years of age, when, without warning, he was taken with five severe convulsive seizures, one following the other in rapid succession, and all occurring within the space of a few hours. The mother supposed that these were simply attacks of ordinary infantile eclampsia, and so can not give now any very clear account as to how they started, continued, or terminated. This is unfortunate, and renders incomplete a most important part of the history. It was during these seizures that the boy's "eyes went wrong," in the phraseology of the mother, and left him with his present internal strabismus. Diplopia, of course, was present for a time, but now the vision of one eye is almost negative. It is important to remember this

condition of the eyes when considering the chorea, though in this case I do not believe there was any causative relationship. The examination of the fundi a year or so ago by Dr. McCreight discovered nothing very abnormal. The shape of the boy's head and the development of his body show a condition of degeneracy. About three years ago the mother suspects that he had an attack of rheumatism with heart failure. At present, however, there are no signs of organic heart disease. It is well known how syphilis of the central nervous system simulates almost all other diseases. Scarlet fever and measles are to be added to the history.

After the convulsions at two years of age, the left side became gradually and noticeably weaker and thinner. There has never been any repetition of the convulsions. At seven years of age the boy suffered his first attack of chorea. It seemed to be slightly more obvious upon the left side than upon the right side. The attack, however, was of the generalized form. Four attacks have occurred altogether, about a year apart and each more severe than the previous one. Except the last one, they continued only a few weeks and then gradually disappeared. The movements were all irregular, spasmodic, and inco-ordinated. They were typically choreic and not slow and rhythmical as they are in the so-called "symptomatic" chorea of the writers. They were partially under the control of the will, and except upon the rarest occasion did not occur during sleep. They involved all parts of the body. The head, face, arms, and legs twitched constantly. It was quite impossible for the boy to hold a knife and fork, and at times the movements were so strong and violent as to throw him from the chair or couch. There was nothing of an athetoid condition about the movements. His last and fourth attack, which began about ten months ago, was the most severe of any and lasted altogether about four months. All the usual remedies for chorea had been tried and failed utterly to modify the choreiform movements. The patient's mental state showed a gradual weakening, and as a result of the constant jactitations there were signs of profound physical exhaustion. There is no cephalalgia. He complains of indefinable, shooting pains here and there about the body, and a feeling of general soreness in the whole left arm. This soreness may be due in part to the muscular exhaustion.

Two weeks after beginning the administration of potassium iodide there was a noticeable diminution in the jactitations, and in a week or

two more they had ceased entirely. At present the boy is perfectly well, except for a few feeble twitchings which occur at rare intervals. The unilateral character of these present movements is to be noted and their appearance almost always in that part of the body which showed hemiplegic tendencies.

This, then, was a case of what the authors call "symptomatic chorea," or, rather, generalized chorea with certain localized "symptomatic" manifestations, due to inherited syphilis. The nature of the lesion may be imagined, but can not positively be defined.

Within comparatively recent times only has the so-called "symptomatic" variety of chorea, hemichorea, prehemiplegic and post-hemiplegic chorea been carefully studied and described by Weir Mitchell, Charcot, Hoffman, Jackson, and others. Perhaps the majority of the cases of choreiform convulsions due to syphilis of the central nervous system are of this class. Our own case, indeed, exhibited to a large extent this definitive localization of the movements. In these cases the movements are generally described as eccentric, with more or less tremor. They are slower, somewhat more rhythmical, and less brusque than they are in ordinary chorea. They are usually unilateral and depend in most of the cases upon a lesion in the pyramidal columns somewhere between the bulb and the cortex.

In our case, however, as well as in some others that have been reported, the movements were generalized and identical with those of ordinary chorea. This at once raises the question as to the role of syphilis in the causation of Sydenham's disease and its *modus operandi*. In spite of the occasional embolic, hemorrhagic, and inflammatory findings, these lesions are not constant enough to form the basis of the pathogenesis of generalized chorea. Moreover, the very conception of the so-called "symptomatic" chorea would lead one to suppose that such lesions should give rise to symptomatic chorea only. This, taken in conjunction with the fact that ordinary chorea so often follows infection, the view has come into prominence that Sydenham's disease is the expression of a toxic nutritional or molecular change in the cells of the cortex. This being so, it is not unreasonable to suppose that the toxin of syphilis can and does act like any other toxin in producing ordinary chorea.

Many reasons might be assigned why syphilis is not more frequently found as a cause of chorea. In the first place, syphilis is rare in childhood, and chorea or the susceptibility to choreiform manifestations

seems to belong to the infantile nervous system. Even hereditary syphilis is rare as compared with some of the other infections known to produce chorea in the child. Jacobi quotes Starr to the effect that cerebral syphilis is very rare in childhood, and cerebral gummata are exceedingly scarce below the twelfth year of life. This alone will explain the infrequency of this cause of chorea. In the second place, it is a cause that until quite recently was not thoroughly sought for in all cases of chorea. And in the third place, it is possible that syphilis, to be a cause of chorea, may require a special neuropathic condition in the patient. All syphilitic children may not develop chorea any more than all syphilitic adults develop locomotor ataxia. There are no arguments against the possibility of syphilis being a cause of chorea; but, on the other hand, there are many in favor of it.

The authorities who omit all reference to syphilis as a cause of chorea far outnumber those who do make mention of it. A few references will serve to illustrate that even among those who do admit the possibility of the causative influence of syphilis, there is much hesitancy and not a little diversity of opinion.

In the American Text-book of Genito-urinary Diseases it is stated, under the heading Syphilis, that "mobile spasms, such as tremors, ataxic movements, athetosis, and chorea, have been observed to accompany syphilitic irritation of the motor cortex and also irritative lesions of the basal ganglia. Of course, these symptoms are unilateral and are observed on the side of the body opposite to the lesion."

Nothnagel mentions symptomatic chorea, and declares that it is very rare after syphilis.

Risien Russell, writing in Allbutt's System of Medicine, observes that measles, variola, diphtheria, enteric fever, cholera, pneumonia, and pertussis are followed by chorea. Pyemia and gonorrhea may give rise to it. He makes no allusion, however, to syphilis. Further along he states that "chorea has appeared in the course of secondary syphilis, which disease Féré considers has been justly regarded as a causative factor."

Féré's own words in the Twentieth Century Practice of Medicine are: "Syphilis has likewise, and justly, been given as a causative factor of chorea."

Neumann, writing upon Syphilis for Nothnagel's System, refers to chorea, epilepsy, visceral neuralgia, and angina pectoris as among the

neuroses of syphilis, and to be considered along with the hysteria and neurasthenia from the same cause.

Eichhorst, in his Practice of Medicine, article Chorea, says, in regard to its etiology, "in adults, syphilis also is to be taken into consideration."

Diday and Sturgis, in their work upon Hereditary Syphilis, point out that chorea is one of the results of the inherited infection.

Besides those who do not mention syphilis at all as a cause of chorea, there are a number who take the position of Keating in his Cyclopedia of the Diseases of Children. After referring to a case of chorea with syphilitic hemiplegia, the writer states that the "relationship of cause and effect can not be considered established."

It is obvious that a certain few authorities recognize the causative influence of syphilis in the production of a localized symptomatic chorea. They admit their belief that these cases may be the result of acquired syphilis, and that they are to be likened to the cases supposed to be caused by such gross lesions as emboli, minute hemorrhagic extravasations, and inflammatory foci. Still smaller is the number who are willing to admit the possibility of hereditary syphilis as a causative factor. And, finally, almost next to none commit themselves to the belief that the functional neurosis of ordinary chorea may be the result of a syphilitic toxemia.

For my part, I can not see why syphilitic toxemia may not act as a cause in disturbing the nutritioual function of the cortical cells and so produce ordinary chorea, if it is to be admitted that this form of chorea is a nutritional and functional disease. If it is only an irritative disease dependent upon gross lesions, then it is all the more probable that syphilis is a causative factor.

I would formulate conclusions about as follows:

1. Syphilis in rare instances is a cause of chorea, and should always be thought of as a possibility in the examination of every case.

2. Chorea may be the result of acquired or hereditary syphilis.

3. Most of the cases of syphilitic chorea are unilateral; belong to the prehemiplegic or posthemiplegic type of the disease; may or may not be associated with other signs of an irritative lesion; are not infrequently developed in hereditary syphilitics, and are to be attributed probably to a functional disturbance of an irritative sort in the cortical and ganglionic motor cells.

4. The existence and recognition of these two forms of syphilitic chorea—the focal and the generalized—support the inference that all forms of chorea are but the expression of one or more of a multiplicity of possible factors which may disturb the functional activity of the upper motor neurons, these factors being all the way from a gross lesion down to a molecular or chemical change not demonstrable with our present means of investigation. This conclusion leads to the further conclusion that chorea is not a disease, but a mere symptom.

5. Syphilis, when determined as the cause of a case of chorea, should lead to the prompt and thorough treatment of the case as one of syphilis and not of chorea.

AN UNSUCCESSFUL ATTEMPT AT HEART-SUTURE.*

BY JOHN H. GIBBON, M. D.

Professor of Surgery in the Philadelphia Polyclinic.

All successful attempts at closing wounds of the heart have been, undoubtedly, reported; all unsuccessful cases should also be recorded, that we may intelligently decide upon the propriety of operative treatment in the various classes of cases which may be met. I therefore submit the following case-history:

A. B., colored, aged about twenty-five years, was admitted to the Pennsylvania Hospital on September 8, 1902, at 8.45 p. m., having been picked up on the street in an unconscious condition by a police patrol. From facts learned subsequently it would appear that the man had been stabbed about fifteen to twenty minutes before the police arrived.

I saw the patient about fifteen minutes after his admission and found a stab wound through the fourth costal cartilage, from which blood was slowly oozing. The patient's pulse was so small and rapid that it could not be counted. The cardiac area of dullness did not seem to be greatly increased, and there was no evidence of blood in the pleura. The patient was in a state of semi-consciousness, any manipulation producing a great deal of restlessness. He was hurriedly removed to the operating-room, where a hypodermic of morphine and atropine was

*Abstract of paper read before the Pennsylvania State Medical Society. Reported in American Journal of Surgery and Gynecology.

given for the purpose of quieting him during the cleansing of the area about the wound, and in order to avoid if possible the use of a general anesthetic. It was found, however, that a small amount of chloroform was necessary in order to keep the patient quiet. At this time no pulse could be felt at the wrist. At 9.20 a flap was turned back and the fourth costal cartilage excised. A considerable amount of semi-fluid blood was encountered outside of the pericardium. The opening in the pericardium was readily found and when it was enlarged very dark blood spurted out in a considerable stream. Digital examination revealed a pericardium filled with blood and a heart which was making desperate efforts to perform its function. It was difficult to find the wound in the heart wall because of the rapid and irregular movements of the organ. After a brief period, however, the tip of the forefinger discovered the opening, and when inserted into it arrested the bleeding. While thus controlling the hemorrhage with the left forefinger, I resected with my right hand the third costal cartilage; in doing this, however, the pleura was opened. Having removed this cartilage the wound in the pleura was closed with gauze packing and a curved needle armed with catgut was passed into the heart-muscle near the wound for the purpose of bringing the organ up into the external opening, where it could be sutured. At this time the patient's heart ceased to beat, and although I endeavored to produce contractions by compressing the heart with the two fingers of my right hand, while controlling the opening with my left forefinger, no action could be produced, and the patient died, the respiration continuing for about two minutes after the heart-action ceased.

I thought at the time of the operation that the wound which I discovered was in one of the auricles, but the post-mortem examination showed it to be in the right ventricle, just below the pulmonary opening and very near the septum. The suture which I introduced had passed through only one side of the wound of the heart. In placing this suture I tried to make it approximate the edges of the wound, though it was primarily introduced for purposes of traction—and it worked well, bringing the heart into easy reach. The time occupied in my work to arrest the bleeding and close the heart-wound was about five minutes. At the same time I began my work, Dr. Mitchell began the exposure of the median cephalic vein in order to give transfusion, but the patient died about the time the vein was exposed.

Post-mortem Examination. On removing the sternum the anterior mediastinal tissues were found full of blood. The left lung was collapsed, and the left pleural cavity contained a large quantity of fluid blood. The right lung was bound to the parietal pleura by a few light fibrous adhesions. The parietal pericardium was infiltrated with blood and presented a dark purplish-black appearance. The cavity contained a small amount of blood. The heart weighed 320 grains. It was not enlarged; it contained no blood, and was quite flabby. Epicardium was smooth and glistening, enclosing a moderate amount of fat. In the wall of the right ventricle, two cms. from the interventricular septum and 4½ cms. below the conus arteriosus, there was a linear wound 1½ cms. in length. It appeared as a narrow slit and ran in the direction of the septum, from the apex toward the pulmonary artery. Passing a probe through this wound it entered the right ventricle between the columnæ carneæ. The heart muscle was pale-brown and rather soft. All the valves were delicate. The aorta was smooth.

This case presents a number of interesting features. The diagnosis of the exact nature of the injury was not difficult; the position of the wound, the rapidly failing circulation, the absence of blood in the pleura, and the patient's nearly complete unconsciousness taken together pointed very definitely to a penetrating wound of the heart without injury of the pleura.

PHILADELPHIA, PA.

SKIN-GRAFTING IN OPHTHALMIC SURGERY.*

BY FRANK BULLER, M. D.

We all know that ophthalmic surgery presents many opportunities for the useful application of skin-grafting in both mucous and cutaneous surfaces, and that our work in this field necessitates extreme accuracy in order to insure reasonably good results. In any event, it will be conceded that upon this subject the last word has not been said. It is often desirable—I may say, indispensable—that we employ as much of the skin texture as possible in order to minimize the tendency to subsequent shrinking and loss of pliability. This is a totally different matter from the mere restoration of epithelium to a widely denuded surface, which may be accomplished by the use of extremely thin shavings from the skin surface, or even by scrapings, but for such a purpose ophthalmic surgery has no use, since there is always a necessity for the transference of skin of substantital quality and thickness. This necessity carries with it all the elements of failure, just in proportion to the size and thickness of the graft. We can not, however, afford anything less than complete success at the first attempt, because the parts are not likely ever again to be in a condition so favorable for obtaining a perfect result as they were the first time the operation was performed. By complete success, I mean re-covering of entire raw surface with integument, which unites immediately and permanently without the slightest flaw or loss.

Judging from the published records of such work, the difficulties in the way of obtaining satisfactory results are very great, and failures have been many. The causes of failure may be summarized as follows: (1) The size and thickness of the graft may be so great that it fails to become nourished sufficiently, and so perishes through lack of vitalizing power. (2) Imperfect coaptation, so that some part of the new skin fails to secure nourishment. (3) An imperfectly prepared surface, especially as to arrest of bleeding. (4) The parts may not be sufficiently aseptic. (5) Accidents or injury before healing is well advanced. Failure from the first of these causes can fairly be attributed to an error of judgment on the part of the operator; failure from the third and fourth implies an error in technique; from the fifth, a want of proper care in the after-

*Reported in the Montreal Medical Journal.

treatment. There remains for consideration only No. 2, and this is by far the most important of all. The problem to be solved is, How can perfect coaptation best be secured? In this connection, the fact must be recognized that every skin-graft consisting of more than a mere epithelial shaving tends to roll in upon itself toward the cut surface. This tendency can not be controlled by merely laying the graft upon a raw surface, nor can it be perfectly overcome by fastening the graft in its place with stitches, since the intervening portions between each stitch will continue to turn inward. Now, this unfortunate tendency becomes a fatal obstacle to union at the edges of the graft, and in addition a sort of sulcus is formed, in which fluid exudate collects and readily becomes septic, besides separating the graft more from its base and source of nourishment. In order to overcome the difficulties arising from this peculiarity of the skin, I sought for some means to make it stay in position with an absolutely perfect spread throughout. For this purpose I found ordinary silk isinglass plaster entirely satisfactory. Some experience is required in order to secure the maximum adhesive quality of the plaster just at the right moment. I find it best to have the plaster cut in convenient strips, a certain area of which is carefully moistened just enough to make it very sticky; then the graft, cut as nearly as may be to the size required, is transferred dry from the razor with its epithelial surface on to the plaster; then with a silver curette it is stroked and spread until completely adherent. When this is done, both skin and plaster may be trimmed with sharp, straight scissors exactly to the size and shape desired. If the surface be large, it may be covered by several neatly trimmed pieces of skin prepared in this way. Over the whole I next place a piece of cargile membrane, dust with finely powdered iodoform, pad with cotton wool in such a way as to secure gentle but tolerably firm and uniform pressure.

Skin-grafts applied in this way after Thiersch's method, even when large, do not fail; they all survive and adhere perfectly to the surface, this, too, when applied where mucous secretions may be present, and would otherwise lead to infection and destruction of the graft. There are two distinct classes of cases in which skin-grafting is required in ophthalmic surgery. The first of these, and by far the more common, is when the skin of the eyelids is deficient, and the defect may best be repaired in this way, that is to say, when sliding flaps are not available. The second is where the conjunctiva is at fault, and requires to be repaired by some sort of integument, either skin or mucous membrane.

Such a requirement occurs in certain cases, mostly of traumatic origin, in which the palpebral and ocular portions have become adherent; and also in cicatricial contraction of the conjunctival sac, such as takes place from persistent wearing of an artificial eye long after it has become roughened by continued use. The method is applicable in all cases suitable for this form of plastic surgery.

There are one or two points in regard to preparing the surface to be grafted upon that invite further remarks. In the first place, it is entirely essential that all bleeding has ceased before the grafts are applied; strict asepsis at every step is also indispensable. Then again, the surface should be put upon the stretch, if need be, by sutures through adjacent parts, which may be attached to adhesive plaster on the surrounding surface, an arrangement, of course, of a temporary character. For instance, in repairing contractions of the empty conjunctival sac it may be necessary to do a canthotomy at the outer canthus and draw the loosened lids strongly upward and downward by sutures passed through them and attached as indicated. Lastly, when the grafts are in place great care is necessary in applying a bandage with the double purpose of protection and of making gentle and uniform pressure so as to prevent the hemorrhage of reaction.

There is nothing in ophthalmic surgery, at least in the writer's experience, more gratifying than the perfect results obtainable from skin-grafting carried out in the manner just described.

MONTREAL, P. Q.

THE AMERICAN PRACTITIONER AND NEWS

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A WORD ABOUT OURSELVES.

This number of the AMERICAN PRACTITIONER AND NEWS will be the last issue of the journal under the present management. Commencing with the next issue a new series will be inaugurated, under the ownership and editorial control of Doctors Fouche W. Samuel and Argus D. Willmoth. These gentlemen are well and favorably known to the members of the medical profession throughout the State, and it is confidently expected they will restore the journal to the position it held of old—that of the foremost medical journal in the Southwest. They will devote their best energies to the building up of a medical journal which will be up to the standard of the best in this country. The journal will be published in the interests of the entire medical profession, and not in the interest of any school or clique.

Such changes will be made in the make-up of the journal as are considered necessary, and new departments will be added, thus greatly adding to the value of the subject-matter. A special feature will be made of society reports from the best societies in the State, many of which have made this journal their official organ. Contributions from the profession on subjects of scientific interest are solicited.

It is keenly felt by the publishers that just ground for complaint has been given in the past by reason of the failure of the journal to appear promptly. The first number of the new series will be dated January 1, 1904, and the journal will be brought up to date at once.

This journal will thereafter go to press on the first and fifteenth of every month. It is hoped that correspondents will take note of this fact, and we ask the indulgence and coöperation of our friends the advertisers.

THE RESULTS OF THE TUBERCULIN TEST OF THE DAIRY CATTLE AT THE CENTRAL LUNATIC ASYLUM AT ANCHORAGE, KENTUCKY.

Nothing of more importance to the public has occurred than the recent experimental test of the dairy cattle at the Central Lunatic Asylum in this State, under the direction of Dr. M. K. Allen, city health officer of Louisville.

As is well known, the injection of tuberculin into cattle infected with tuberculosis results in a rise of temperature, thus proving the presence of tuberculosis in the animal. The test is well-nigh infallible, as was proven by the Ohio State Board of Health some years since, when a large number of fine Jersey cattle were condemned and killed by the order of that board.

In no case where the Ohio State Board condemned a cow did they fail to find a tuberculous deposit in the udder or the lungs. The work of testing the cattle at Anchorage was commenced last summer, and was not finished until recently, when it was found that 45 per cent of a herd of sixty-five cattle were infected. Four of the cattle that responded to the test have been killed—two of the worst-looking ones, and two of the best-looking ones—and all were found to have the tubercular deposits in their udders and lungs. The remainder of the cattle that responded to the test will be killed.

It is to be hoped that our efficient State Board of Health will turn its attention to this very important subject, and test all of the dairy cattle of the State, and rid the public of this nuisance and menace to life. It is a well-established fact that infected cows can not furnish milk that is fit for food. It is also a fact that milk is one of the most potent agents in the dissemination of tuberculosis. Of course, there will be a great howl raised when the State Board condemns these cattle and kills them, but the public must understand that there is no greater menace to the welfare of the good people of the Commonwealth than

the tuberculous cattle of the State, and to that end the State Board of Health must be supreme in the matter of selecting the dairy cattle.

In the city of Baltimore, some years ago, there was a great resistance on the part of the dairymen when the City Board of Health undertook to get rid of the diseased cattle in their herds. Matters finally got to such a pitch that the City Board was given absolute control, and if a dairyman wanted to move a cow across the street he had to secure a permit from the board to do so. The final result was that the herds were cleaned out, and have been kept so since that time. There can be no question but that cattle may become infected by consuming the expectoration of tuberculous patients. Persons so affected should not be permitted to work in a dairy, or be permitted on the dairy grounds.

Dr. F. F. Fort, one of the most prominent among the younger surgeons of this city, who is surgeon of the Illinois Central Railroad, has recently been appointed Professor of Surgical Anatomy and Operative Surgery in the Louisville Medical College. This is a well-deserved honor conferred upon a worthy gentleman.

Current Surgical and Medical Selections.

The Etiology of Sleeping Sickness.—(A. Castellani in the Lancet, March 14, 1903.)—The organism which Castellani describes as the cause of sleeping sickness he has grown in pure culture in eight out of ten post-mortem examinations from the cerebro-spinal fluid and from the heart's blood. During life he has found the organism but once in the blood, but has grown it in two out of three cases from the cerebro-spinal fluid obtained by lumbar puncture.

He describes the germ as a distinct variety of the streptococcus group, its morphology varying, according to the media and the age of the culture, from long chains to typhoid diplococci. Frequently well-defined mucoid capsules are made out, and in hanging drops well-defined Brownian movements are seen. The organism stains with the ordinary aniline dyes. The organism grows well on agar, being much more vigorous than the streptococcus pyogenes or the streptococcus lanceolatus. The colonies show a marked tendency to coalesce; still in some cases the growth may be much more delicate than usual, and the colonies may remain separate. In stab culture the growth takes place luxuriantly along the stab, the surface growth being more delicate. There is no gas formation in sugar agar. Litmus remains unchanged. There is a slight growth on potato. Gelatine occasionally shows a slight liquefaction after five or six days and a well marked growth.

The appearance of bouillon cultures varies greatly. In most cases the bouillon remains clear and there is a flocculent sediment. Sometimes the bouillon is cloudy, with little or no sediment. These sediments show chain and diplococci forms.

The organism grows well on serum. There is no coagulation of milk, in this respect differing from the streptococcus pyogenes. The organism is a facultative anerobe. The agglutination experiments have not been carried to any extent, but they would seem to be positive.

Castellani claims that this organism differs entirely from the diplococcus isolated and described by the Portuguese commission.

In the Lancet of May 23, 1903, the Portuguese commission replies to Castellani. They claim to have described a diplo-streptococcus derived from the cerebro-spinal fluid and arachnoid exudate in several cases of sleeping sickness in 1900, and in a second report in 1902 the cultural characteristics of the organism were fully described, and are identical with those described by Castellani. This, however, is a mere contention of priority. It would seem that the organism described is the true cause of sleeping sickness.—*Maryland Medical Journal.*

Special Notices.

Menorrhagia.—Menorrhagia is frequently dependent upon a condition of subinvolution of the uterus, resulting later in endometritis, and it is in these cases that the value of Hayden's Viburnum Compound is particularly recognized. Under its administration the uterine congestion is relieved, the relaxed tissues restored to a normal tone, and the flooding promptly checked. This is accomplished without the unpleasant effects of ergot. If there is a profuse hemorrhage from the uterus in consequence of the presence of tumors, such as polypi, fibroids, or malignant growth, the administration of Hayden's Viburnum Compound is indicated, in order to lessen the flow until such a time as the removal of the tumor can be accomplished. Aside from its hemostatic qualities, this preparation furthermore relieves the accompanying pain and renders the patient more comfortable. During the climacteric, patients often are troubled with flooding, and if this be not due to the presence of malignant or other diseases, which must be carefully sought for, it can be greatly relieved by the continued administration of Hayden's Viburnum Compound.

The Advantages of Combining Remedies.—John Moir, L. R. C. P. and L. R. C. S. Ed., in *The Therapist*, London, says: "Latterly I have been using Heroin very extensively in tablet form in combination with antikamnia, and found the combination to act charmingly, both for relieving pain and in procuring comfortable, restful sleep, so very desirable and necessary after sleepless periods, caused by a protracted, irritable cough. The soothing rest in these cases was also characterized by a light but well-marked fall in temperature; but the greatest benefit of all in this treatment is that, although the distressing frequency of the respiration was reduced, it was stronger and heavier and less spasmodic, with a beneficial effect upon the heart at the same time. The tablets I use contain antikamnia 5 grains, heroin hydrochloride 1-12 grain, and were given every two, three, or four hours, in cases of cough, bronchitis, and respiratory affections generally, according to the severity of the symptoms, but usually one tablet every three hours. I found that the respiration was rendered easy, the expectoration was loosened without difficulty, and sleep was more readily obtained than with morphine, and unlike morphine there were no after-effects. I have personally been taking Antikamnia and Heroin Tablets three times a day for an irritating cough, with occasional inclination to breathlessness; so that I have every reason to be thoroughly satisfied with them as sedatives and calmatives."

A Diagnostic Chart of Tumors and Pseudo-Tumors.—Battle & Co. have just issued a complete and unique chart on the above subject, compiled by Dr. Edward C. Hill from standard works on surgery and pathology. The subject-matter is divided into solid neoplasma (sub-divided into benign and malignant growths) and true and false cysts. The general characteristics of each division are given, and their 24 classes, embracing over 100 varieties, are compared critically in columns under the following headings: Tissue, Topography, Number, Size, Conformation, Color, Consistence, Mobility, Sensibility, Surrounding Tissues, Occurrence, History or Growth, and Miscellaneous Points. Features of special differential value are emphasized by the use of italics. This chart shows almost at a glance for ready comparison all that could be learned in a diagnostic way from the perusal of hundreds of pages of ordinary text. It stands indeed to such books as an atlas does to a gazetteer. This very convenient and valuable compendium is at the command, gratis, of any and every practitioner of medicine who will take the trouble of writing a postal card to Battle & Co., 2001 Locust St., St. Louis.

—THE—

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